SEPTEMBER, 1953

Products finishing

Antique Copper Finish.....Page 24
Barrel Finishing.....Page 36
Solution Level Control.....Page 54
Cleaning Zinc Die Castings....Page 68

Finishes on *Metal* Products

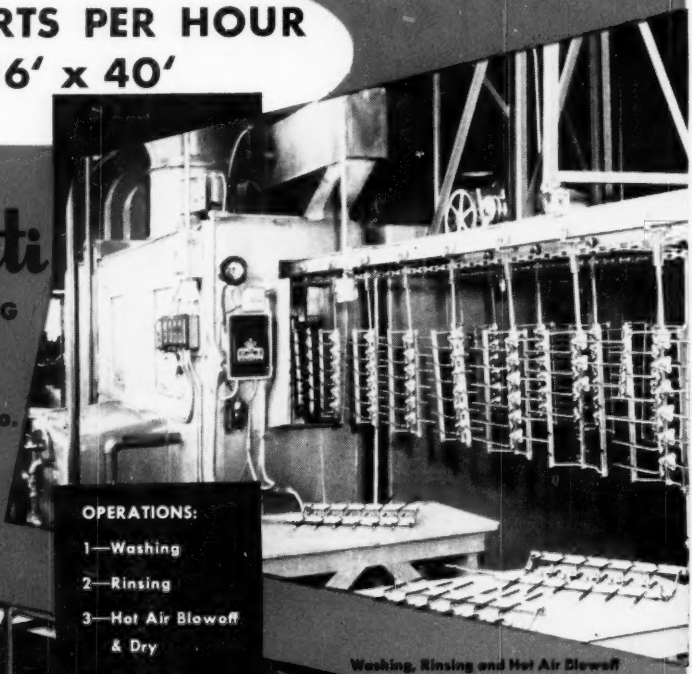
1000 PARTS PER HOUR in Space 16′ x 40′

ENGINEERED BY . . .

Cincinnati

CLEANING AND FINISHING MACHINERY CO.

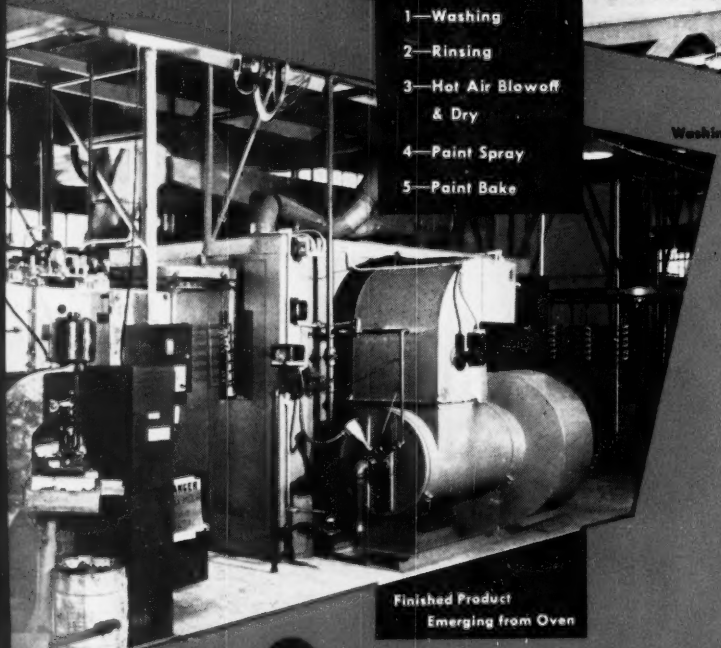
at The George R. Carter Co.
Detroit, Mich.



Washing, Rinsing and Hot Air Blowoff

OPERATIONS:

1—Washing
2—Rinsing
3—Hot Air Blowoff & Dry
4—Paint Spray
5—Paint Bake



Finished Product Emerging from Oven

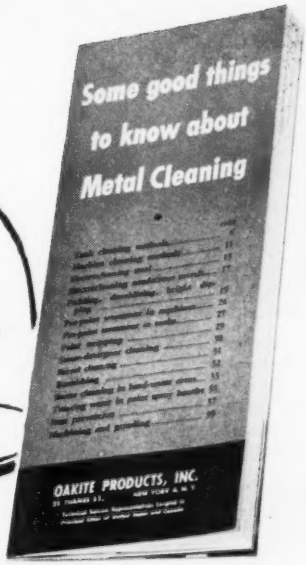
Unusually compact, this CINCINNATI - engineered small parts finishing system has proved to be a major improvement in The George R. Carter Company's production facilities. Complete finishing operations on automobile trim hardware, parts are performed efficiently and quickly.

With a minimum of adaptation this Cincinnati system can handle a large variety of small parts. Representative installations have shown savings up to 75% in time and cost.

Write for your copy of the latest CINCINNATI catalog today!

Cincinnati CLEANING & FINISHING MACHINERY CO., INC.

2008 HAGEMAN STREET SHARONVILLE, OHIO



Oakite's FREE Booklet on Metal Cleaning

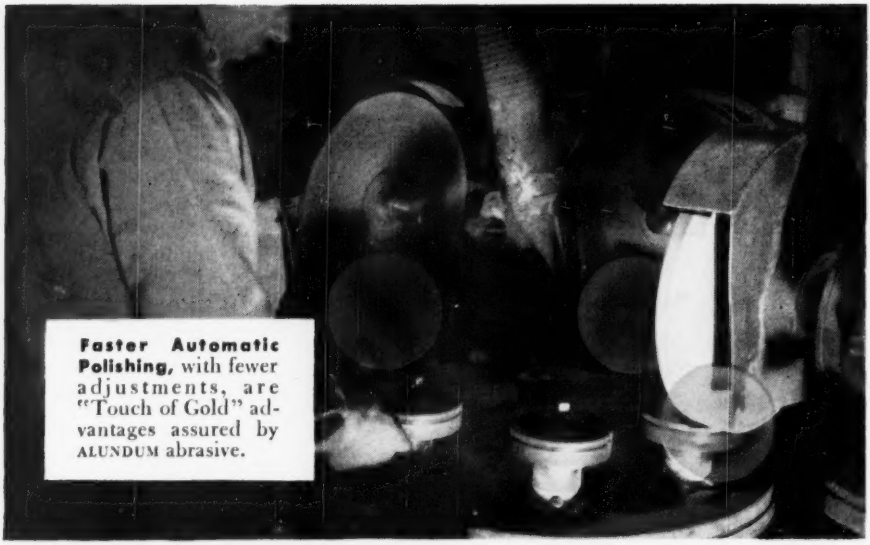
answers many questions that mean better production, more profit for you. Just look at the table of contents:

Tank cleaning methods
Machine cleaning methods
Electrocleaning steel
Electrocleaning nonferrous metals
Pickling, deoxidizing, bright dipping
Pre-paint treatment in machines
Pre-paint treatment in tanks and by hand
Paint stripping
Steam-detergent cleaning
Barrel cleaning
Burnishing
Better cleaning in hard-water areas
Treating wash water in paint spray booths
Rust prevention
Machining and grinding

FREE For your copy of the 44-page illustrated booklet, *"Some good things to know about Metal Cleaning"*, write Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. & Canada

OAKITE SPECIALIZED INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE



Give your polishing the cost-cutting

"TOUCH of GOLD"

. . . with ALUNDUM* abrasive on your set-up wheels

Here are two big advantages of Norton ALUNDUM polishing abrasive:

Uniformity. ALUNDUM abrasive grains are uniform in size, structure and chemical composition. No oversize grains to mar surfaces — no undersized grains that loaf on the job. Instead, a full quota of tough, sharp, equal-sized grains — each one doing its share of fast-cutting, uniform polishing.

High Capillary Action. ALUNDUM abrasive is specially treated to raise capillarity. Each grain soaks up glue easily and thoroughly — each is held as firmly as its neighbor, giving a strong, long-lasting, top-performing polishing wheel.

In Your Automatic Polishing these advantages are particularly important. With each ALUNDUM grain working equally hard, and each one tightly fixed to the wheel, you get top-quality polishing with minimum adjusting. That's the product-improving, time-saving "TOUCH OF GOLD" that will build *your* profits on *every* polishing job.

See Your Norton Distributor for ALUNDUM polishing abrasive in the types, sizes, and surface treatments you need. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed in your telephone directory yellow pages under "Grinding Wheels." *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

G-262

NORTON

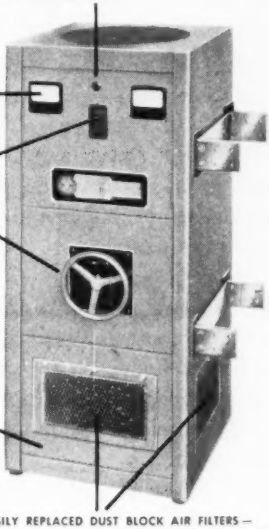
ABRASIVES

Making better products... to make other products better

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

NEW H-VW-M HEAVY-DUTY Rectifiers

combine all these features most desired for metal finishing operations



EYE-LEVEL PILOT LIGHT — quick, positive switch indication.

LARGE, SQUARE-TYPE METERS — easy to read, accurate to 2%.

CONVENIENT START-STOP BUTTON — simplified switching for operating *entire* unit.

SINGLE-WHEEL TYPE CONTROL — 21 points of fool-proof on-load control, available 10 KW to 20 KW.

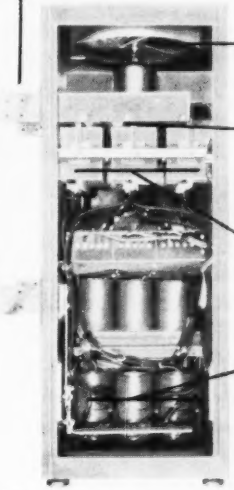
AUTOMATIC RESETTING STARTER — DUAL INPUT — full overload protection *plus* low-voltage release. Dual Input: 220/440 v, 3 phase, 60 cycle.

STURDY STEEL CABINET — with angle iron frames, grey hammertone finish, may be mounted on rubber shocks (optional).

EASILY REPLACED DUST BLOCK AIR FILTERS — remove all solids and most fumes. Easy to reach from front of cabinet.

Dual output is available for slight additional cost. Models available in either self-contained or remote-controlled units.

HEAVY-DUTY TERMINALS — deliver 6-phase center-tap output with theoretical ripple of only 4.2%.



FAN-DRIVEN UP-DRAFT — oversize fan with sealed motor and lubrication constantly cools transformers and stacks.

PRECISION-CALIBRATED THERMOSTAT — positive guard against excessive stack temperature. Instant cut-off.

CUSTOM-BUILT SELENIUM STACKS — assembled and electrically matched by H-VW-M. Plate areas well above N.E.M.A. specs. Heavy anti-corrosion, anti-fungus coating.

HEAVY-DUTY TRANSFORMERS — Class B insulation type, rated for continuous operation at temperature rise up to 25° over ambient, calculated for convection cooling.

PLATEMANSHIP

Imagine... a theoretical ripple of *only 4.2%*. There's real assurance of more uniform deposits! And single-wheel control... only one control for 21 points of on-load switching! And those *oversize* transformers for plenty of reserve capacity—as well as the *increased plate area*... all these, plus the individual features pointed out above, add up to the most complete line of rectifiers ever designed for metal finishing. *Yet they cost less per unit than any other rectifiers made!*

For complete information on H-VW-M Rectifiers ask for Bulletin ER-105.

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.

PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BALTIMORE • BOSTON CHICAGO • CLEVELAND • DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • LOUISVILLE • MATAWAN MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) UTICA • WALLINGFORD (CONN.)

H-VW-M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES · EQUIPMENT · SUPPLIES

THEY LIKED WHAT THEY SAW... SO THEY BOUGHT IT!

Eye appeal put these anxious people in this frenzied buying mood..."*make them like what they see... and they'll buy it!*"...is probably the most basic of all merchandising axioms . . . this is where your Egyptian Finishes Specialist and the ingenious Egyptian Lab. Technician behind him can assist you most. Call on their highly specialized finishing knowledge to help you make your product look better... wear better... sell better.

Talk to them about your finishing problems on the production line too. Often their suggestions have broken seemingly impossible bottlenecks... lowered overall finishing costs and increased production. They know and will tell you the specifications for finishing any Government product.

Let *EGYPTIAN* help *YOU* make *THEM* like what they see!

Invite an Egyptian Industrial Finishes Specialist to call on you today.

SYNTHETICS • VARNISHES **EGYPTIAN** LACQUERS • ENAMELS

INDUSTRIAL FINISHES

The EGYPTIAN LACQUER MANUFACTURING CO.

Box 444, Newark 1, New Jersey

Plants: South Kearny, N. J. • Lafayette, Ind.

VOLUME 17 NUMBER 12 SEPTEMBER, 1953

Products Finishing

CONTENTS

Education in the Finishing Industry;—A Continuing Requirement 23
Editorial

Antique Copper Finish for Modern Gas Ranges 24
By Ezra A. Blount

Barrel Finishing of Metal Products
—The Aim and Purpose of a Barrel Finishing Experimental Research Program 36
By H. Leroy Beaver

Finishing Clinic 50

How To Maintain Constant Solution Level with Simple Foolproof Fixture 54
By Paul E. Miller

Corrosion Resistance of Galvanized-Steel-Stitched Aluminum Alloys 58

Practical Applications of Modern Products
—How to Clean Zinc Base Die Castings Before Plating 68
By A. T. Thibadeau

—Airless Spray Painting 70
By James A. Bede

—Caustic Soda Cleans Dimpling Dies in Aircraft Plant 78

—Removal of Zinc from Deburring Stones .. 86

—Steel Carpenter Squares Polished on Two Sides at the Same Time 86

New Equipment, Materials, Processes 92
Finishes That Aid in Appearance and Utility 124
News of the Industry 126
The Finishing Touch 142
Opportunity Section 143
Index to Advertisements 144

M. L. Forney
publisher

Ezra A. Blount
editor

H. Leroy Beaver
Frank L. Bonem
Dr. C. Fred Gurnham
Bryant W. Pocock
Dr. Seymour Senderoff
consulting and contributing editors

Gene J. Schwarber
advertising manager

Norman S. Rogers
art director

K. M. Gettelman
circulation manager

ADVERTISING REPRESENTATIVES

Richard S. Kline
George E. Hay
431 Main Street, Cincinnati 2, Ohio
MAin 0182

G. M. Fillmore
Duncan W. Barton
342 Madison Ave., New York 17
Murray Hill 7-7390

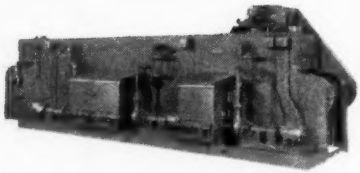
John M. Krings
Tribune Tower, Chicago 11
DElaware 7-5441

The Robert W. Walker Co.
2330 West Third Street
Los Angeles 5
DUnkirk 7-4388
57 Post Street, San Francisco 4
SUtter 1-5568

MEMBER
ECA NBP

Published monthly and copyright (1953) by

Gardner Publications, Inc.
431 Main St., Cincinnati 2
Printed in U.S.A.



BLAKESLEE washers 35 years old and still running!

Little more need be said about the performance, efficiency and quality of Blakeslee Metal Parts Washers. This is not an isolated case, but the kind of *uninterrupted service* manufacturers have come to expect. That's why Blakeslee has been the outstanding leader since its original contribution to mass production methods.

G. S. BLAKESLEE & CO.

Established since 1880. Manufacturers of Blakeslee solvent vapor degreasers—metal parts washers—Blacosolv degreasing solvent.*

Write today for full information. CHICAGO: 1844 South 52nd Avenue, Chicago 50, Illinois: **NEW YORK:** 381 Fourth Avenue, New York City 16: **CANADA:** G. S. BLAKESLEE & CO. LTD., 18 Cranfield Road, Toronto 13.

**BLACOSOLV IS STOCKED IN LOCAL WAREHOUSES FROM COAST TO COAST.*

Hammond OF KALAMAZOO

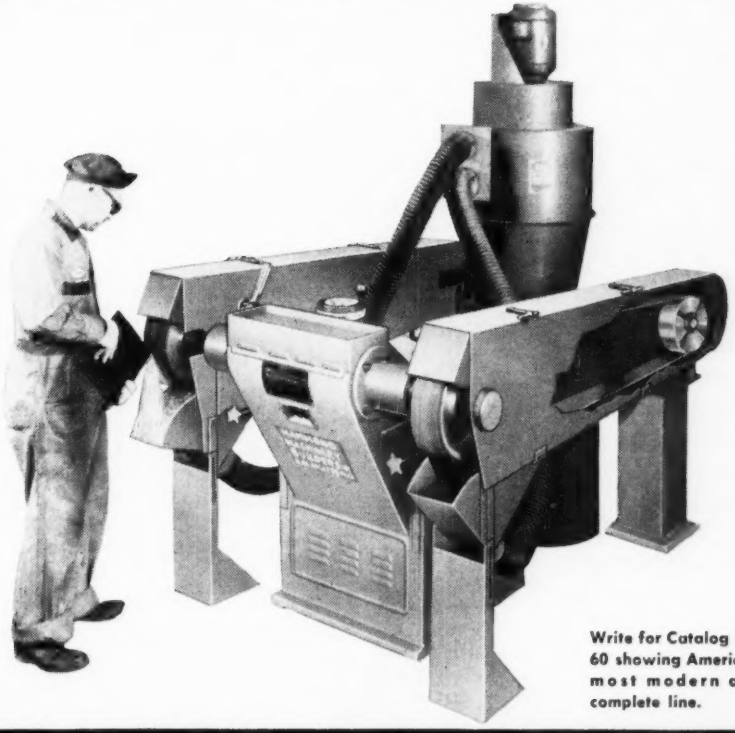
GOOD MACHINERY SINCE '82

MODERN *Self Contained* GRINDER-POLISHER

Hammond Variable Speed (1500 to 3000 RPM) Polishing and Buffing Lathe. Models up to 50 HP available.

Hammond Cyclone Duskolector. One of a wide line of Cyclone and Filter Types.

Hammond Backstands. 10 Air and Spring Tension Models to choose from.



Write for Catalog No. 60 showing America's most modern and complete line.

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN

HARSHAW ANODES and CHEMICALS

You can depend on Harshaw products to keep your production moving. For more than fifty years we have concentrated on improving the quality of the anodes and chemicals used by platers.

NICKEL PLATING

. . . still and barrel . . . nickel anodes—all commercial grades and sizes . . . anode bags . . . single nickel salts—nickel chloride . . . nickel carbonate . . . nickel fluoborate . . . boric acid.

CHROMIUM PLATING

. . . pure "Krome Flake" 99.8% CrO_3 . . . sulphates less than .10% . . . lead, tin-lead and antimony-lead anodes.

COPPER PLATING

. . . copper ball anodes . . . Rochelle Salts . . . sodium and copper cyanides . . . copper sulfate . . . copper fluoborate.

CADMIUM PLATING

. . . ball and cast cadmium anodes . . . cadmium oxide . . . sodium cyanide . . . cadmium fluoborate.

TIN PLATING

. . . cast tin anodes . . . sodium stannate . . . stannous sulfate . . . tin fluoborate . . . acid tin addition agent.

ZINC PLATING

. . . ball and cast zinc anodes . . . sodium and zinc cyanide . . . zinc sulfate . . . zinc fluoborate.

LEAD PLATING

. . . cast lead anodes . . . lead fluoborate.

SILVER PLATING

. . . silver cyanide.

The HARSHAW CHEMICAL Co., Cleveland 6, Ohio

Chicago 10, Ill. • Cincinnati 13, Ohio • Detroit 28, Mich. • Houston 11, Texas
Los Angeles 22, Calif. • Philadelphia 48, Pa. • Pittsburgh 22, Pa. • New York 17, N. Y.

This wheel of fortune pays 20 to 1 on every turn

In one minute this machine does a job that formerly required 30 minutes! It shows what *you* can do with new OSBORN Power Brushing techniques to speed *your* production and cut costs.

The job consists of deburring ends of stainless steel blades of a jet engine stator assembly. Chucked up in a grinder, as shown, the assembly rotates counter-clockwise at 20 rpm. An 8-inch grinding wheel grinds the ends of the vanes. Burrs and feather edges are then removed by two OSBORN 10-inch Monitor® Brushes rotating at 2800 rpm—45 seconds in each direction. The complete cycle takes 1½ minutes. Vane ends are made uniformly smooth, 20 times as fast as former hand method.

The answer to *your* production problems may be found with special Osborn-equipped machines such as this . . . or with one of the Osborn Brushing Machines which are being used in scores of plants for high-speed deburring. For *any* problem in deburring, cleaning and finishing, start tackling it with the powerful experience of your **O**sborn **B**rushing **A**nalyst. Call him or write *The Osborn Manufacturing Company, Dept. O-9, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

FREE: New booklet on deburring with Osborn Power Brushing. Write for your copy.

Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES

Lyfanite

CORROSION RESISTANT COATING FOR ALUMINUM & STEEL ALLOYS

Lyfanite Coating provides excellent paint bonding properties and resistance to corrosion under Salt Spray and Humidity Tests.

N.C.Co.

METALPREP
GALVAPREP
LYFANITE
PREP-PIK-L
PREP-N-COTE

Metal Conditioning
Rust Removing
Phosphatizing
products for
STEEL, ALUMINUM,
ZINC, CADMIUM, etc.

LYFANITE-A a Phosphate Coating for Aluminum Alloys meeting Govt. Spec. M.I.L.-C-5541. Ask for Bulletin 52-98.

LYFANITE-Z a Zinc Phosphate Coating for Iron and Steel Surfaces. Conforms to Govt. Specs. JAN-C-490, Grade 1, PA-PD-191, Grade 1, and Spec. U.S.A. 57-0-2, Type 2, Class C. Ask for Bulletin 52-118.

NEILSON CHEMICAL CO.

MANUFACTURERS OF METALPREP

2682 Tecumseh Rd.
Windsor, Ont.

6561 Benson St., Detroit 7, Mich.

3411 Union Pacific Ave.
Los Angeles 23, Calif.

YOU WOULDN'T FIGHT A MIG WITH A SPAD

. . . THEN WHY TRY TO "GET BY" WITH OLD-FASHIONED WASHING METHODS?

Do the job the **modern** efficient way—with

INDUSTRIAL WASHING MACHINES

Industrial machines are designed to perform **any** finishing task . . . washing, rinsing, drying, phosphate coating or any combination of these operations . . . in **any** industry and for **any** product.

You'll find that **Industrial Washing Machines** will

• **CUT COSTS** • **SPEED PRODUCTION** • **KEEP QUALITY HIGH**

Find out how **Industrial Washing Machines** can do the job **you** need done. Write Dept. PF-9 for detailed information.

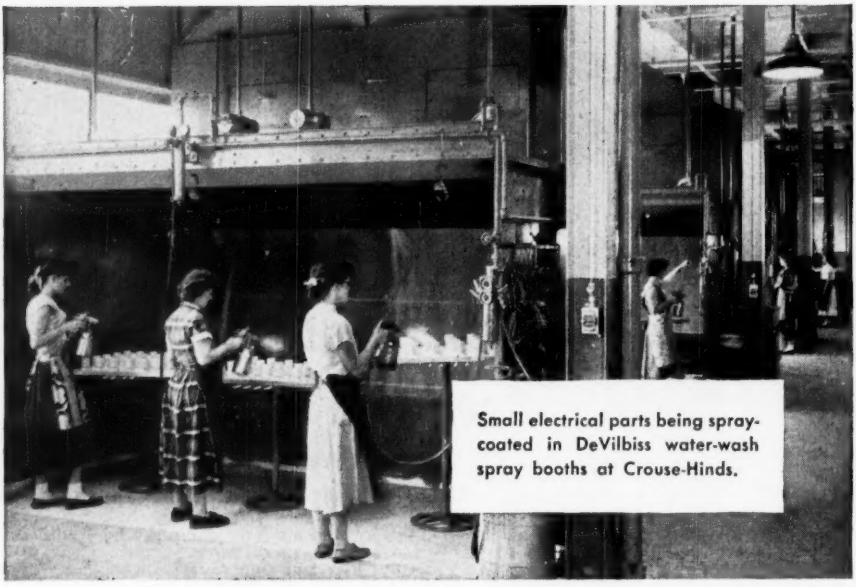
INDUSTRIAL SYSTEMS COMPANY

Exclusive Sales Agents

for Industrial Washing Machine Corp.

New Brunswick New Jersey

DeVilbiss spray equipment ... produce 3 big



Small electrical parts being spray-coated in DeVilbiss water-wash spray booths at Crouse-Hinds.

Crouse-Hinds Company, prominent manufacturers of electrical equipment, specified DeVilbiss spray equipment when they redesigned their extensive finishing department. The results — three big benefits:

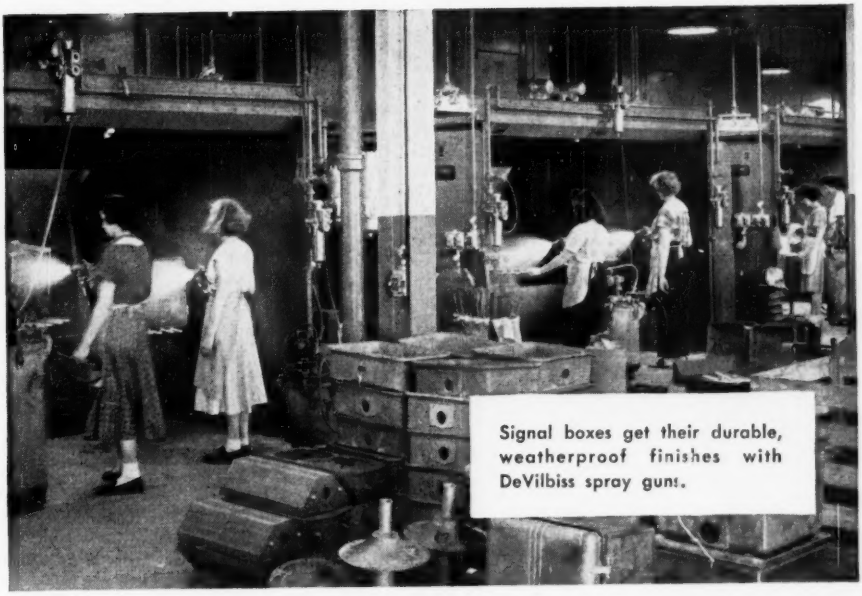
1. Accelerated production
2. Cleaner finishes
3. Much better working conditions

Seven water-wash spray booths were carefully positioned by Crouse-Hinds plant engineers and DeVilbiss field men to get maximum efficiency in material handling. The integral DeVilbiss air washing units help produce cleaner product finishes and completely exhaust paint fumes and overspray.

Crouse-Hinds' women spray painters find that DeVilbiss guns make spraying easy. Smooth trigger action, simple adjustment and light weight reduce

BRANCH OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT

and careful planning benefits for Crouse-Hinds Co.



Signal boxes get their durable, weatherproof finishes with DeVilbiss spray guns.

fatigue, assure more uniform finishes.

DeVilbiss will be glad to work with you, too, to improve your spray operations and reduce your production costs. Your local DeVilbiss jobber has the information you need on spray booths, spray guns, air compressors, transformers, hose and connections to do any spray-coating job better. Call him now, or contact our branch office or factory.

THE DEVILBISS COMPANY
Toledo, Ohio

Windsor, Ontario • London, England
Santa Clara, Calif.

FOR BETTER SERVICE, BUY
DEVILBISS

THE UNITED STATES, CANADA AND THE WORLD

Enhance the Brilliance of Your Gems with Enduring, Tarnish-Proof

RHODIUM PLATING

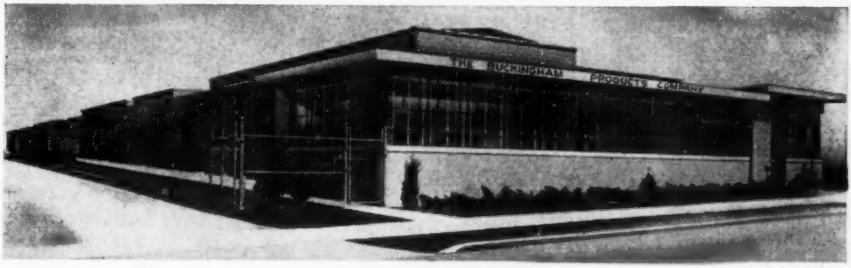
The hard, brilliant white finish of rhodium is now widely used in the jewelry industry to give enduring reflectivity to settings — thus enhancing the natural brilliance of the set stones. Rhodium *does not* lose its initial high reflectivity upon exposure to atmosphere but retains it indefinitely . . . For gem settings and other decorative and commercial applications Baker Rhodium Plating Solution allows fast, easy application of a bright, corrosion-resistant finish . . . Write for booklet # 15, "Directions for Rhodium Plating", for complete details.

BAKER & CO., INC.

113 ASTOR STREET, NEWARK 5, NEW JERSEY
NEW YORK • SAN FRANCISCO • LOS ANGELES • CHICAGO

Complete, Modern Facilities Assure You The Utmost in Quality and Service on

BUCKINGHAM POLISHING and BUFFING Compositions



- Stainless Steel Composition
- White Finish
- Tripoli
- Chrome Coloring Composition
- Greaseless Composition
- Emery Cake
- Brass Coloring
- Emery Paste
- Burring Compound*
- Grease Stick
- Spray Pastes Stainless Steel Tripoli

Representation in Major Cities *Write Dep't. C for Samples*

The BUCKINGHAM PRODUCTS Co.

14100 FULLERTON AVE. • DETROIT 27, MICH.

News about UNICHROME

Trade Mark

The advantages of different "Stop-off" methods

In applying an insulating coating directly on the work, users of Unichrome Stop-off Lacquer get quick-drying, accurate application by brush or dip. Hot-dip Unichrome Wax Compounds hold a sharp line too, but can also be melted for reuse. Many plants prefer to wrap unwieldy work with Unichrome Tape for the extra convenience in applying and removing.

All these are single-time methods. Shielding offers a method good for an indefinite number of cycles for some work—especially when shields are made or insulated with plastisol Unichrome Coating 218X. This saves time, money, materials.

Chromium plating small parts no longer a problem

Economical plating of small parts has been made possible by the Unichrome 24-inch Chromium Plating Barrel. This development offers one of the most successful and efficient batch-type units ever built. Handling large quantities of work and producing a bright, high quality plate, it ends excessive racking costs once and for all.

Half a million small sewing machine parts, for example, were plated by one barrel, in one day, by one man. Another plant has installed 8 of these money-saving barrels and now does tremendous volumes of small parts plating in one shift. Write for technical details.

Costs reduced

New economies found

A NEW ENGLAND manufacturer, plating dies and plugs in the Unichrome SRHS Chromium Bath instead of the ordinary bath, found that tool life was being substantially increased. At the same time, plating time had been cut in half.

This case highlights the essential improvement that has been made since the advent of SRHS Chromium Solutions—that it is now possible to plate at *higher* speed and still get far *smoother* deposits than heretofore.

PHOTOMICROGRAPHIC EVIDENCE

The photomicrographs above show the reason why the Unichrome SRHS Solution produces a smooth plate. With unusual "leveling action," this bath smoothed over the minor surface irregularities—while producing a 40% thicker plate than the ordi-

Ucilon* Coatings protect largest plating machine

Plating departments, with their highly corrosive solutions and high humidity, make an ideal proving ground for protective coatings. Ucilon Coating Systems have given 2, 3, and more years of service in many plating shops.

It was because of this durability that they were selected for protecting the largest wire plating machine at the plant of a famous concern. Walls, structural work, ductwork are also being protected.

Write for Bulletin No. MC-7. *Trade Mark

COATINGS for METALS

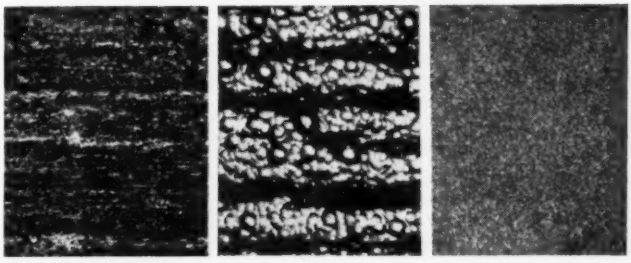
Metallic . . . . . Organic . . . . . Decorative . . . . . Protective

in hard chromium plating

through unusual chromium deposits produced by Unichrome SRHS Bath

nary chromium bath, in the same time, and under the same conditions.

Such a deposit saves grinding and polishing. This saving cuts required deposit - thickness which still further reduces plating time.



Untreated steel | *Plated in ordinary bath* | *Plated in SRHS Bath*

ANOTHER REASON FOR SPEED

Unichrome SRHS Chromium Baths have wider bright plate range. As a result, full advantage can be taken of higher operating current density for fast deposition of metal without burning on projections. Deposits also show little or no evidence of "treeing," even at high speeds.

MINIMUM EFFECT ON STEEL

Chromium plating increases steel's resistance to corrosion and wear. But it is known also to reduce its fatigue limit. Research shows, however, that high strength steel plated in SRHS Chromium suffers the smallest loss of fatigue strength.

Platers are finding more and more of their industrial customers *specifying* SRHS Chromium Plating for this reason.

* * *

While it's still chromium, you can see there's a distinct difference when it's deposited from a Unichrome SRHS Chromium Bath. In addition, the bath can regulate itself, minimize control problems, and maintain peak plating balance. With higher cathode efficiency, it also cuts power requirements and increases capacity without extra equipment.

Write or phone for data.

UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N. Y.
Detroit 20, Mich. • Waterbury 20, Conn.
Chicago 4, Ill. • Los Angeles 13, Calif.
In Canada:
United Chromium Limited, Toronto, Ont.

OPPORTUNITY FOR PROFITS in *your* plant operations

ENGINEERED SERVICE

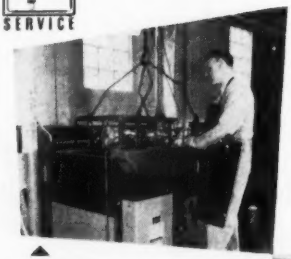
Here's how Phillips Degreasers help manufacturers turn cleaning operations into real profits . . .

Realizing that more metal parts can be cleaned in less time with Phillips vapor degreasers, manufacturers have cut costs and increased profits in their plant operations.

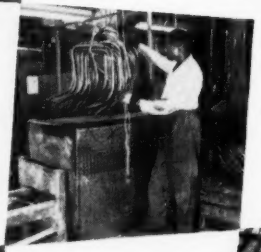
Every man-hour saved in cleaning cuts costs just as well as hours saved in machining, finishing, stamping or any other operation. And with Phillips' modern, all-electric degreasing method, your cleaning costs can be cut as much as 50%.

Here is a real opportunity for new profits due to less costly cleaning. Investigate now. There's a Phillips man in your area. Check with him today or write.

PHILLIPS VAPOR DEGREASERS

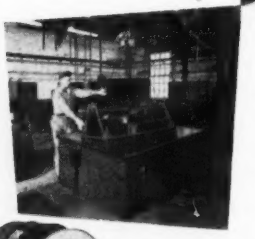


Skil Corporation reports better cleaning of parts plus 3 to 4 times faster cleaning with their Phillips Degreaser.

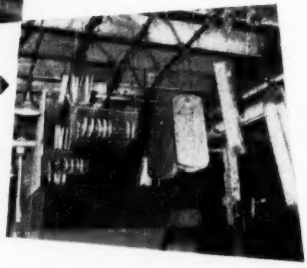


Arrow Plating Co., Inc., makes use of a Phillips unit to get fast degreasing of tubular metal parts for furniture.

Bettcher Manufacturing Co., uses a Phillips Degreaser to clean large heater parts for better results at greatly reduced costs.



Steger Products Manufacturing Co., also uses a Phillips monorail conveyor type unit built right into their production lines, saving as much as 50 man-hours per day.

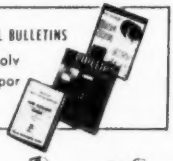


PHILLSOLV

. . . the one degreasing solvent that gives you more thorough cleaning . . . of more parts per gallon . . . at less cost.

SEND FOR YOUR COPIES OF THESE HELPFUL BULLETINS

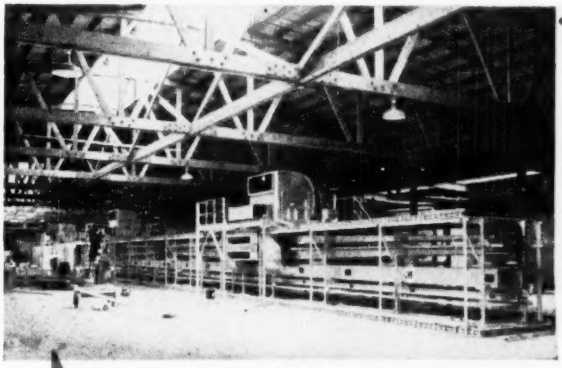
Phillips Vapor Degreasers; Phillsolv Bulletin; and the informative Vapor Degreasing Handbook.



Phillips MANUFACTURING COMPANY
3457 TOUHY AVENUE • CHICAGO 45, ILLINOIS
ENGINEERED METAL CLEANING EQUIPMENT

BATCH TYPE DEGREASERS · COMBINATION DEGREASERS · "ROTOMATIC" DEGREASERS · CONVEYOR TYPE DEGREASERS · "TORRENT" WASHERS

Sometimes It Pays To Do Things Backwards



Drying Oven for Paper Products

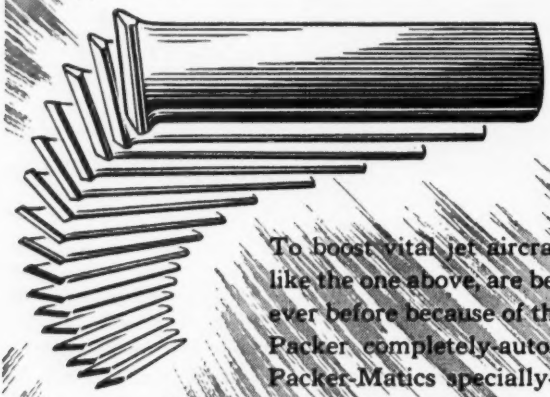
Another example of the versatility and engineering ability of Peters-Dalton in meeting problems is illustrated in the installation pictured above. This huge, 200-foot, three heating zone water drying oven was required by a paper manufacturer to dry his molded paper products. Usually, an oven's shell is first erected, then the interior working parts are assembled within it. Due to space limitations, however, the usual method was impossible, so PD engineers worked *backwards* on the job, constructing the oven's interior first, then erecting the shell over the finished oven—meeting the manufacturer's needs for an efficient drying system without sacrificing valuable plant space.

Baking and drying equipment should be designed for the specific product and process. Whatever *your* baking and drying problems are, PD engineering experience and production "know-how" stand ready to meet and *solve* them. We will be glad to tell you more if you write, wire or phone.

Hydro-Whirl Paint Spray Booths • *Industrial Washing Equipment*
Drying and Baking Ovens • *Hydro-Whirl Dust Collecting Systems*

Peters-Dalton INC.
17908 Ryan Road • Detroit 12, Michigan

Jet blade production increased



by PACKER-MATIC MACHINES

To boost vital jet aircraft production jet blades like the one above, are being produced faster than ever before because of the speed and efficiency of Packer completely-automatic buffing machines. Packer-Matics specially-designed to do this one job are finishing at a high rate of production, to exacting specifications, without a single finishing reject. Packer machines are also hard at work buffing, grinding, or de-burring reciprocating engine parts for planes, tanks, and vehicles, casings for shells, and many more items essential to defense. If higher finishing room production can help you, whatever you make, write today for more information about the versatility of continuous, indexing, or straight-line Packer-Matics: the Packer Machine Company, 400 Center St., Meriden, Conn.

AUTOMATIC

PACKER-MATIC

AUTOMATIC MACHINES FOR BUFFING • POLISHING • DEBURRING • GRINDING

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

CLINCO

PIONEERING QUALITY INDUSTRIAL FINISHES SINCE 1928

Our

25th

Anniversary

MAXIMUM QUALITY

GREATER DURABILITY

Customer Service is Our No. 1 Concern

THE CLINTON COMPANY

1210 ELSTON AVE. • CHICAGO 22, ILL.

USE *Cowles* LP CLEANER

for buffing and drawing compound removal

Cowles LP is an anhydrous, non-silicated soak cleaner for use on all metals except aluminum. LP removes buffing compounds, drawing compounds, and other soils without pitting or depositing white film on such work as zinc base die castings, brass, steel and other alloys. LP works rapidly and thoroughly. It leaves a chemically clean surface after rinsing.

COWLES TECHNICAL SERVICE
Gladly Furnished Upon Request

COWLES CHEMICAL COMPANY
METAL CLEANER DEPARTMENT
7016 Euclid Avenue • Cleveland 3, Ohio

NOTE *There is more information on LP Cleaner in this booklet. Send for it!*

Pf editorial

SEPTEMBER, 1953

Vol. 17, No. 12

Education in the Finishing Industry; ---A Continuing Requirement.

The month of September signals the return of the nation's school children to the halls of learning. This month can serve also to remind the many individuals intimately concerned with the continued growth and development of the finishing industry, of the necessity for providing more facilities for basic practical training in finishing principles and techniques.

During the past twenty-five years the tremendous expansion in plants and facilities carrying out electroplating, paint finishing, porcelain enameling, and galvanizing has gone forward at a rate that has taxed the ability of educational institutions to supply the trained engineers and supervisory personnel needed to insure efficient operation of these facilities. Since finishing operations are rather specialized, formal courses of instruction at college level can not be devoted entirely to them. Several schools and colleges offer special courses in finish application and technique (for example, see page 141) but these are too few.

Manufacturers and suppliers to the finishing industry have realized the lack of training facilities, and some of them conduct schools in finishing techniques free of charge to individuals in the industry. Others encourage students to study finishing problems by offering scholarships in various universities for studies related to industry problems. Some of these offer the student an opportunity for part-time work in finishing plants so that his experience is broadened by contact with day-to-day problems.

Various branches of the American Electroplaters' Society have assisted in the establishment of evening courses in electroplating and metal finishing at universities and technical schools located in their respective geographical areas. These courses have provided the double benefit of aiding branch members in the solution of their daily problems, and of training young people so that they might become active in the industry, and usually, in the A.E.S. branch in question.

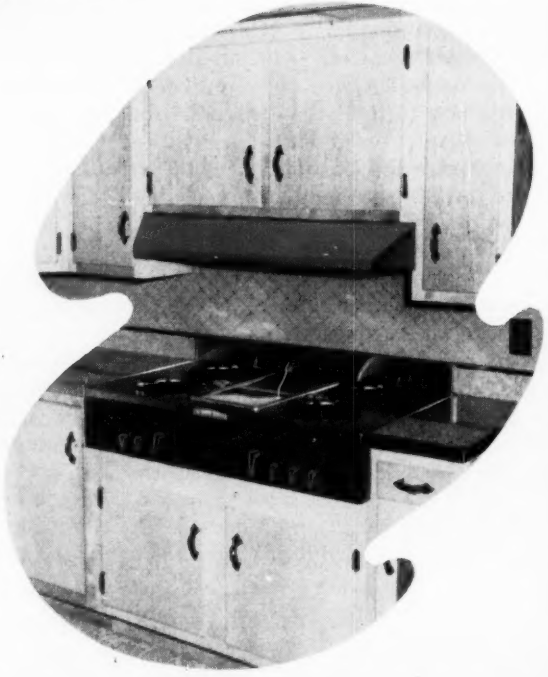
Research to find new methods, new materials, and new uses for the products of the finishing industry has been credited, and justly so, with the great acceleration which it has given to the growth in size and importance of that industry. Increased industry-wide attention, now, to the education and training of people *in* the industry, and new people *for* the industry might be equally rewarding.

Ezra A. Blount

—EDITOR

Antique Copper

Chambers Model AC-61C gas range, featuring antique copper exterior panels, bright copper gas handles and hardware, and chromium plated steel cooking top.
(Photo courtesy Chambers Corp., Shelbyville, Indiana)



Chambers 4-Burner "In-A-Top" Broiler unit with fan-driven ventilating hood built into a natural wood kitchen. Counter top of the cooking unit is stainless steel with a No. 4 satin finish. Front panel is finished in antique copper. Gas handles, hardware, and vent hood are in bright copper to match hardware on cabinets.

Finish for Modern Gas Ranges

Illustrative of the continuing trend to use both plating and a paint finish to secure attractive, durable exterior coatings for consumer products for modern living is the antique copper finish developed for exterior panels on Chambers Gas Ranges. Finish consists of copper plate on steel range panels followed by a chemical treatment; a clear synthetic enamel is then sprayed on and baked to complete the finishing cycle.

By EZRA A. BLOUNT
Editor

THE development and design of home appliances over the past twenty years has sparked a general trend toward the improvement in appearance and increased efficiency of the home kitchen as a workshop and living area. Major emphasis in the evolution of home appliances has been placed on design improvements, better mechanical operation, and more durable and attractive finishes. As a result of this effort, kitchen appliances

Chambers "In-A-Wall" Gas Oven attractively harmonizes with wood cabinets in a modern kitchen. Exterior oven panels are finished in the new antique copper finish; hardware is finished in bright copper plate.

that are attractive, easy to keep clean, durable both as to operational service life and appearance, have been produced. The homemaker has

John E. Chambers, president of Chambers Corporation, who invented the Chambers Range over forty years ago, and is responsible for many of its distinctive features, has been a consistent contributor of new developments to the cooking equipment industry. Mr. Chambers, never one to look backward or be entirely satisfied with any current development, is still (at an age beyond that at which many men retire) working toward new developments in cooking ranges.

available now a work space that is pleasant and efficient, in which many labor-saving devices — considered "musts" in the modern home—are installed.

Gradually, in the conception of architects as well as through usage, the kitchen has been transformed from a place of drudgery to a place of beauty, on a par with the other living areas of the home. As this trend of making homes more livable and attractive continues, the tendency of interior designers or decorators to design the kitchen more into the home proper has made itself felt more noticeably. At the same time, particularly in those areas of the country that are conducive to outdoor living, the interior design of homes has trended toward the elimination of many interior walls and a general opening up of the entire house. This in many cases is combined with an outdoor living area so skillfully that the transition from the inside to the outside takes place so gradually that the sum total effect of this effort creates an entirely new high in gracious living.

This trend has been responsible for the use of rustic or antique effects on interior walls and in interior design of kitchens, for example. Copper utensils have gained favor for use in such indoor-outdoor kitchens because they help create the effect of antinque fittings in an environment of modern efficiency. It was to produce a kitchen appliance in keeping with the dominant trend in kitchens designed and decorated in the theme of outdoor living, that led the design engineers of the Chambers Corporation to introduce the antique copper range finish to the home appliance industry.

The trend with respect to appliance exterior appearance first took the direction of all-white appliances for the kitchen and workroom. Then certain pastel color combinations were promoted. Now an antique copper finish has been developed to mark the latest direction of the kitchen design trend.

For ranges of high quality, a porcelain enamel exterior finish—white or in color—is normally specified.

Such a finish has the necessary qualities of heat resistance and easy cleaning that are mandatory. The antique copper finish could not become a reality for this application until a clear synthetic enamel having heat resistant and easy cleaning characteristics had been developed. Combining as it does copper plating operations with a series of painting and baking operations, antique copper is not a less expensive finish than porcelain enamel, but is a high-fashion finish which was developed to harmonize with early American kitchen design in which polished copper utensils and fixtures are used.

Development of Chambers Range

Since its invention in 1909, the Chambers Range, product of the Chambers Corp., Shelbyville, Indiana, has featured many "firsts" in range design. Among these "firsts" are the following: First completely insulated range which "cooks with the gas turned off"; first to use a fitted door and basket type oven racks; first to design a broiler, mounted in the cooking top, suitable for table service; first to have a chromium plated, one-piece cooking top; first to introduce ranges in decorator colors; first with the antique copper baked enamel finish.

The first range produced by John E. Chambers, one of the pioneers in the gas range industry, who is still active as president of the company which bears his name, was a wooden box heavily insulated on all sides, resembling an old-fashioned ice box. The principle behind the design was that, if insulation could keep the cold in, it could also retain the heat for cooking purposes. In the early models of the "fireless cooker," heavy soapstone plates had to be heated and placed in the insulated cooking compartment. An obvious and immediate improvement on that idea was to put gas burners right into the cooking compartment, working out, at the same time, details of gas vents

Fig. 1—First step in the production of the antique copper finish on 18-gauge cold rolled steel range panels is a polishing operation performed with 120 emery set-up wheel. Photo shows polisher in the plant of the Adams Plating Works, Indianapolis, Indiana, using Hammond polishing lathe to perform the first polishing operation in the cycle.

that would close automatically when the gas was turned off. Within a very few years the Chambers Range had graduated into a full metal cook stove, still retaining the fully insulated oven for cooking on retained heat, and incorporating a smaller unit, first known as the Thermodome, and later as the Thermowell, in which an entire meal can be cooked on only ten minutes of gas.

In 1928 the Grand Prize and Gold Medal of the Paris International Exposition were awarded to the Chambers Range. It was the first American-made range so honored. Since that time the Chambers has received the badge of approval from numerous home-makers' associations and institutes throughout the world.

Very early in the development of this high quality product the practice of finishing range parts in nickel or chromium plate or porcelain enamel was inaugurated. The new antique copper finish for the exterior range panels marks another milestone in the company's progress in producing a well-engineered, useful gas range of outstanding appearance.

Producing Antique Copper Finish

To form a proper base for applying the antique copper finish on exterior steel panels for the Chambers Range, it was found necessary to employ two polishing operations. To produce panels which would retain perfect shape without distortion caused by the polishing operations, material specifications were altered from the 20-gauge enameling iron used to form all other panels (which are finished in porcelain enamel) to 18-gauge cold rolled steel. Range panels formed from the 18-gauge steel are first polished on a 120 emery set-up wheel using a grease stick lubricant (see Fig. 1) and then polished to a satin finish on a canton flannel buff using Lea greaseless compound.

Following the preparation of the base metal, process operations used to create the antique copper finish are as follows:

1. Rack and clean in Oakite 90 alkaline cleaner, operated at 190-200 deg. F., using reverse current at 6 volts.
2. Cold water rinse.

Fig. 2—One of the Rochelle salt copper plating baths used to apply the electroplated copper coat to the polished range panels.

3. Pickle in 25 per cent (by volume) hydrochloric acid containing an inhibitor to minimize attack on the base metal.
4. Cold water rinse.
5. Copper plate in Rochelle salt cyanide copper plating solution (see Fig. 2) at 130-140 deg. F. and 25-40 asf for 45 minutes. Thickness of deposit is held between 0.0005 and 0.0007 inch.
6. Cold water rinse.
7. Test plating thickness with Magne-Gage.
8. Hand brush using a Nylon bristle brush, 4F pumice, and water to reproduce an unidirectional satin finish on the copper plated surface.
9. Oxidize in a polysulfide solution for two minutes (see Fig. 3). The solution contains one pound of polysulfide per 35 gallons and is used at room temperature. A fresh solution is prepared each day.
10. Cold water rinse.
11. Hand brush with 4F pumice and water (see Fig. 4) to produce distinctive highlighted antique copper finish.
12. Rinse completely free from pumice.
13. Hot water rinse.
14. Dry in "maizo meal."
15. Remove traces of "maizo meal" with a soft bristle brush.
16. Inspect for flaws as well as shade of antique copper, color matching against a standard color sample.

To protect the antique copper finish thus produced, and provide a surface that will withstand the wear and tear that a kitchen range exterior receives in ordinary service, two coats of a specially formulated clear synthetic enamel are applied. This enamel is formulated with an Epon resin which imparts high heat and abrasion resistance to the baked finish. Panels that have received the antique copper finish and have passed inspection are sprayed with the special clear enamel in the conventional manner and baked for ten minutes at 350 deg. F. under care-

Fig. 3—Oxidized stove panel being removed from the polysulfide solution in the Adams Plating Works.

fully controlled conditions so that the temperature variation is within ± 10 deg. F. The coating thickness of this first coat is 2 mils. After panels are cool, a second coat of the same material 2-3 mils thick is sprayed on and the panels are baked for 20-25 minutes at 350 deg. F.

One of the distinctive features of the range is the one-piece steel cooking top which is finished in satin chromium plate. The cast iron gas handles are finished in bright copper, to harmonize with the antique copper range panels, and are also coated with two coats of the same clear synthetic enamel that is used to protect the antique copper finish on the stove panels. The polishing and plating cycle for the handles is quite similar to that described for the stove panels, with the exception that the oxidizing and brushing operations are not used. Following copper plating, the handles are copper buffed to a high luster, cleaned with solvent, and then spray coated with two coats of the clear baking enamel. A baking operation similar to that previously described follows each spray coat.

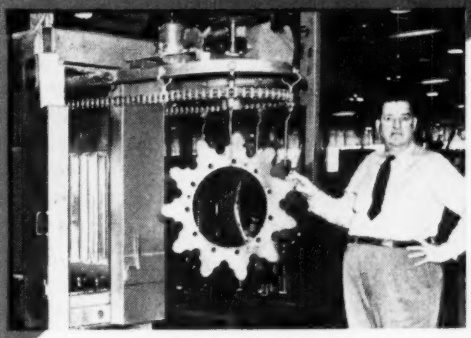
Characteristics of the Antique Copper Finish

Finishes for ranges must withstand severe wear and must be heat resistant to a considerable degree, as well as being easy to clean and keep clean. Since the oven of the Chambers range is heavily insulated, the exterior panels do not reach a temperature above 190 deg. F. when the stove is in operation. The clear finish used on the antique copper has been tested at 500 deg. F. for an hour, and has shown no ill effects, thus proving that it is quite satisfactory with regard to heat resistance. Additional tests which the new finish has withstood successfully include: tests for abrasion and corrosion resistance, a 250-hour humidity test at 110 deg. F. and 100

Fig. 4—Brushing or "highlighting" the oxidized range panel with wet pumice and a Nylon bristle brush calls for operator skill not found in many of today's mechanized finishing operations. Since panels must match the shade of a standard sample, skill in this brushing operation determines final appearance and per cent acceptance or rejection. *(PRODUCTS FINISHING Staff Photos)*

CHRYSLER TANK CORP. CUTS HEATING TIME 90% with Jensen Pan-L-Heat

C. T. ANDERSON, SUPERINTENDENT SAYS:



STEEL SPROCKETS weighing 60 lbs. are preheated in this 32-KW Jensen Pan-L-Heat oven at Chrysler Tank Corp., Newark, Del. In addition to decreasing heating time, the oven is doing "a much cleaner job."

"TO PREPARE steel sprockets for shrink fit, we formerly pre-heated them in a hot oil bath—from room temperature to 200°-500°F. Average time for the operation was 40 minutes.

"Now, with a Jensen Pan-L-Heat Oven, a much cleaner job is done in *three to five minutes.* The messiness and fire hazard of hot oil dripping on the floor has been eliminated."

Perhaps Jensen Pan-L-Heat is the answer to YOUR special heating problem. Why not talk it over with your nearby Jensen sales representative. They're in all principal cities.

YOUR PLANT CAN HAVE

- Increased pay load realization.
- More effective use of electric heat.
- Uniform, high quality production.
- Superior results with shorter heating cycles — at lower energy consumption.

• *Get All the Facts—Write for Jensen Pan-L-Heat Brochure (on your letterhead, please).*

Jensen SPECIALTIES, INC.

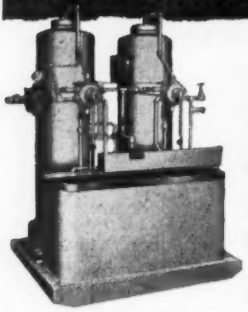
PAN-L-HEAT Ovens

REPRESENTATIVES IN PRINCIPAL CITIES

9331 Freeland Ave.
Detroit 28, Mich.

For PURE Water

INDUSTRIAL
WATER DEMINERALIZERS



Mill Room Water
Nickel Dip Solutions
Neutralizer Solutions

Cost analyses are proving that the use of raw water in metal coating processes is not so cheap after all. This is especially true when mineral-free water can be obtained for a matter of cents per 1000 gallons in any quality with an INDUSTRIAL water demineralizer.

The operation is very simple. Raw water is passed through alternate beds of ion-exchange resins, and it comes out free of all mineral salts. No steam, heat, still, or cooling water is needed—keeping space requirements at a minimum.

It's simple to get the complete facts for your case. Send us a water analysis and let us know how much water you have to treat and the gallons per hour needed. We can then give you the whole demineralizer story including estimated costs, equipment required, performance data, etc., for your requirements.

★ ***Write for recommendations***

INDUSTRIAL FILTER & PUMP MFG. CO.

5904 Ogden Avenue Chicago 50, Illinois

per cent humidity; tests for chemical resistance to vinegar, grease (hot and cold), milk (dried on), mustard, coffee (dried on), alkali (concentrated and diluted), salt and other chlorides; ammonia. Tests show further that stains, boil-overs, and spillage can be removed quickly and easily with a cloth dipped in a warm water solution of any modern synthetic detergent.

The antique copper finish, itself, is not a particularly new development. Its use as a finish for home appliances, and particularly gas ranges, is a radical departure from conventional practice. The new finish provides the architect and home planner with a product which can be designed into today's attractive kitchens, adding beauty and warmth to settings of natural wood, knotty pine, rustic or early American kitchens, and bricked-in settings. It also provides more work for the plater, who may have had trouble finding enough nickel for his regular production, and illustrates dramatically another example of the combination of a plated coating with a paint, lacquer, or enamel coating to produce the beautiful and utilitarian finishes on today's consumer products.

CORRECTION

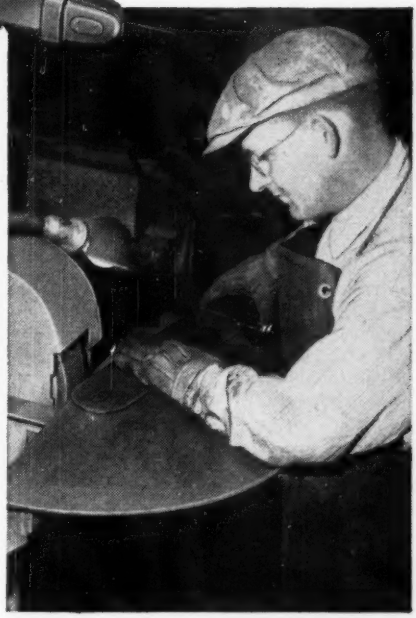
In the article, "HAE Coatings on Magnesium," published in the July issue of PRODUCTS FINISHING, potassium permanganate was listed as one of the ingredients in the bath used to produce the HAE coating. The ingredient, "potassium manganate" should have been listed rather than "potassium permanganate."

Chain saw bars get new sales appeal from 3M BELTS!

PRODUCTION PROBLEM: To produce a higher finish—with greater customer appeal—on chain saw bars at the Oregon Saw Chain Manufacturing Company. (The maker of the famous ARMOR-TIP Saw Bar desired an appealing, lustrous finish on this alloy-tipped bar).

3M SOLUTION: A 3M Representative analyzed the finishing operation and demonstrated how the 3M Backstand Method using Three-M-ite Cloth Belts would produce a finer finish on the alloy tip than was achieved with a grinding wheel alone. He also recommended the right 3M Abrasive Belt on their Curtis Straight-O-Matic Grinder for final finish on saw bar surface. Previously, manufacturer had used a surface grinder for this operation.

RESULTS! Now this Portland, Oregon manufacturer produces a finer, more attractive finish in less time! Perhaps a 3M Representative can improve *your* company's finishing operations. His training and experience in industrial application of coated abrasives are available without cost or obligation.



WANT MORE INFORMATION?

Minnesota Mining & Mfg. Co. Dept. PF93, St. Paul 6, Minn.

Return this coupon today for more facts on 3M Abrasive applications.

Name.....

Company.....

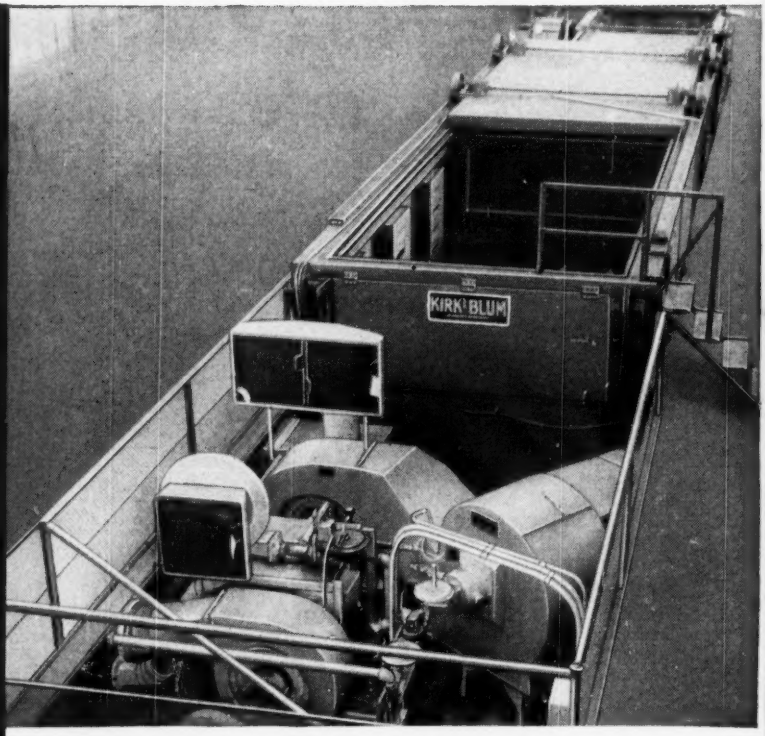
Address.....

City.....Zone...State.....

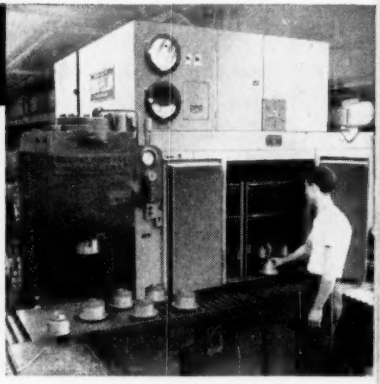
3M ABRASIVES

Made in U. S. A. by
MINNESOTA MINING & MFG. CO.
General Offices: Saint Paul 6, Minn.
In Canada: London, Ont., Can.
Export: 122 E. 42nd St., New York City.

Makers of: "SCOTCH"® Pressure-Sensitive Tapes • "SCOTCH"® Sound Recording Tape
"3M" ® Adhesives • "UNDERSEAL" ® Rubberized Coating
"SCOTCHLITE" ® Reflective Sheeting • "SAFETY-WALK" ® Non-Slip Surfacing.



20-ton capacity rotor and stator varnish baking oven. Installed in a pit, this 300° F. oven is ten feet deep by fifteen feet long and twelve feet wide. It is loaded by shop crane.

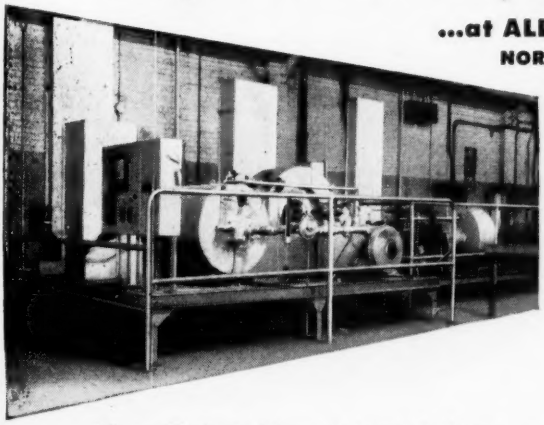


Turntable commutator curing oven. Commutators are assembled cold—heated to proper temperature—tightened and returned to oven for final curing.

KIRK and BLUM OVENS

. . . put the heat on production problems

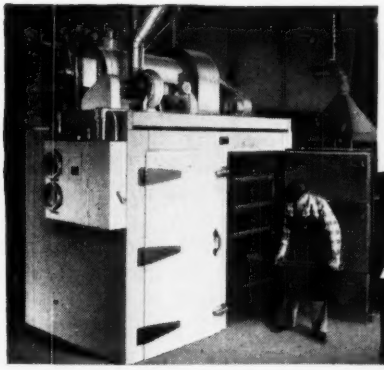
...at ALLIS-CHALMERS Mfg. Co.
NORWOOD, OHIO WORKS



Heating systems for two batch-type varnish baking ovens are located outside of the varnish dipping department to minimize hazards.

Many Kirk & Blum Industrial Ovens are designed, fabricated and installed for specific production problems. Shown here are a few of the variety of K & B ovens which are used in electric motor manufacture at Allis-Chalmers Mfg. Company, Norwood, Ohio.

Put the 46 years of experience and skill of Kirk & Blum to work on your industrial oven problems. Write for complete information and "Industrial Ovens" Bulletin to The Kirk and Blum Mfg. Co., 3116 Forrer Street, Cincinnati 9, Ohio.



500° F. batch type core sand baking oven. Individual cores are placed on shelves at right, truck loads of cores are baked in the left hand section in new non-ferrous foundry.

KIRK AND BLUM
INDUSTRIAL OVENS

The Aim and Purpose of a Barrel Finishing Experimental Research Program

THIS is the one hundredth discussion in a series of papers under the general heading "The Barrel Finishing of Metal Products," that has appeared in PRODUCTS FINISHING beginning with the February, 1937 issue. There is much yet to be written, and in our files we have sufficient material for quite a number of further discussions.

You may better understand this when we tell you that we are now rounding out our thirty-eighth year of experimental research in this field. During this period we have known most of the originators of current types of barrels; talked with them and learned the basis for their inspiration in developing the types of barrels representing their patents.

During the years in which these discussions were published we enjoyed a wide correspondence with barrel owners and operators both here and abroad, so that the background we have established has somewhat of an international flavor.

From the very beginning this research program has been dedicated to the American manufacturer and more especially to that segment of our manufacturing field designated as "Small Business." The conduct of experimental research is an expensive proposition, not so much from the point of view of the equipment and materials used, but more especially in the factor of time. In every phase of barrel finishing procedure, time is of the essence. The

# of Metal Products

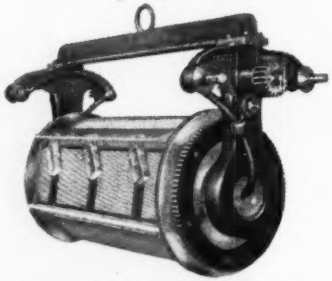
By H. LEROY BEAVER
Beaver Barrel Finishing Research
Lansdale, Pennsylvania

smaller operators simply cannot devote the necessary time to experimental research. We have been trying and will continue to try to step into this breach and supply the best information we can on the phase of barrel finishing procedure interests. No fees will be asked, and none will be expected. You may state your problem, and we will do everything we can to help you in its solution.

These discussions are being prepared for the readers of PRODUCTS FINISHING who are concerned with barrel finishing, whether as plant owners or barrel operators. Naturally we cannot guess what your problems may be, or what you are trying to accomplish through barrel finishing. Whatever your problem may be, please feel at perfect liberty to submit it to us. Naturally we do not have all of the answers, but down through the years we have accumulated a vast store of information from which you are privileged to draw without the least obligation. We have found that sometimes a part of the answer to one problem, when coupled with a part of the answer to a second problem, will provide the answer to a third problem. It is only t h r o u g h the exchange of thoughts that we can progress to better things in this field of production endeavor, so please do not hesitate to write us whenever you feel in doubt, and if we have the answer we will get it to you promptly; if we do not, we will try to find it for you.

These discussions are provided by the publishers of PRODUCTS FINISHING and this research working hand in hand. We want you, our readers, to feel that it is your very own just as much and as fully as though the experimental operations were taking place in your own plant. It matters not a little bit to us whether you seek information for the largest cor-

for
★ Production
★ Highest possible current
★ Heavy duty performance



STUTZ PLATING BARREL UNIT

of High Temperature Lucite for continuous operation through Alkali Cleaning, Acid Pickling, Acid and Alkaline Plating solutions and rinsing. Largest number of cylinder perforations possible. Our new patented method of dual hole design provides extra small holes previously unobtainable.

STUTZ PLATING BARREL UNIT

Motor Drive Mounted Overhead

Continuous rotation of cylinder from one operation to another and where a minimum of solution dragout is important. Roller bearing chain drive to absorb load shock.

Write for illustrated literature on our new Portable Plating Barrel.

Manufactured by

GEORGE A. STUTZ MFG. CO.

1647 Carroll Ave., Chicago 12, Ill.

poration or whether it is for a one or two man shop down some side street, because the problems of the latter are just as important as are those of the former. Our joint objective is the creation of a better understanding of the principles of barrel finishing and the best manner in which those principles should be applied in the finishing of the parts in which you are interested.

In the course of these discussions you will be introduced to some materials and processes that will be new to you, and for that reason we feel that we should insert for the sixth time since 1937, the following clause:

> "The publication or description of any material or process having in itself the elements of newness, of novelty or of originality, are fully meant and intended both by this Research and the publishers of PRODUCTS FINISHING to constitute a dedication to public use; that none of this material may be seized upon either in whole or in part for inclusion in any claims for Letters Patent, whereby its use might become restricted."

Down through the years we have discussed many phases of barrel finishing procedure and materials with literally thousands of barrel owners and barrel operators, and with the actual originators of the barrels themselves. This has formed the foundation on which this experimental research program has been built. So may we explain to you that we cannot regard all of this data as being our own personal property, or

120 YEARS OF KNOW-HOW

from all over the world flows into your plant from PARKER

Parker Rust Proof Company, U. S. — **38** years

Metallgesellschaft, A. G., Germany — **26** years

The Pyrene Company, England — **28** years

Societe Continentale Parker, France — **28** years

120 years

Our customers, through our international affiliations, get the benefits of world-wide research, experiment and application.

For the best in surface treatments for metals, call on Parker!

**Bonderite, Bonderlube, Parco, Parco Lubrite — Reg. U.S. Pat. Off.*

Since 1915— leader in the field

PARKER RUST PROOF COMPANY

2172 E. Milwaukee Ave., Detroit 11, Michigan

BONDERITE corrosion resistant paint base

BONDERITE and BONDERLUBE aids in cold forming of metals

PARCO COMPOUND rust resistant

PARCO LUBRITE wear resistant for friction surfaces

as having all been originated by us. Rather, we regard it as a stewardship, and it is our task to try to present the material to you in such form that you may apply it in your daily work for the three-fold purpose of increasing your production volume, lowering your production costs, and bettering your surface color and finish. Thus you will be able to present a more attractive product to the ultimate purchaser. All of us in barrel finishing realize all too well the importance of the "over the counter appearance" of our products.

In order to provide for you the information we feel you should have for as complete an understanding as possible, we will have to go back many years to review the practice of that day and compare it with the present procedures. Barrel finishing developments made one hundred years ago have been carried down through the years with complete satisfaction. We do feel that it is important for every barrel owner or operator to know what has happened in the past in order that he may have a sufficient background against which to plan his present day operations.

Barrel Finishing Materials

Those of you who have followed these discussions from the beginning will recall that in many of the pa-

3 QUICK FACTS

Tell How You Can

Finish Any Metal BETTER for LESS

If you want to do a better job of metal-finishing, and *save money doing it*, VINSYNITE can help you. Here's how:

1. Vinsynite is applied simply, by brush, spray or dip. It involves only one step, requires no chemical control, no heating, no special equipment.

2. Vinsynite is versatile. It performs successfully on any metal. Even if your product is made from several different metals, it can be painted *after* parts are assembled.

3. Vinsynite outperforms other coatings in adherence and corrosion-resistance. Forms a perfect base for any types of top coats.

Regardless of what you finish, Vinsynite can help you finish it *better* for *less*. Send for free booklet and specific test data.

Test specimen of steel tubing. Under severe distortion both Vinsynite and Vinyl top coat are unaffected.

SPECIALTY COATINGS, INC., Division of THOMPSON & COMPANY

1000 Allegheny Ave. • Oakmont, Pa.

Vinsynite

COMBINES PROTECTION AND ECONOMY

When you use

HOUGHTO-CLEAN 439 and 440 Cold Cleaners

no hot wash is needed!

Now . . . by using this efficient production line cleaning method we recently perfected . . . you can remove soils and oils in fewer washes *without* using a hot wash!

Houghto-Clean 439 and 440 supplement each other to provide a combination of alkali-solvent-wetting properties which make these cost-reducing benefits possible:

You need no stacks, vents, burners, heat controls . . . heating costs are eliminated (saving plenty!) . . . mixing is easy . . . parts are never too hot to handle . . . and absence of steam also adds to the comfort of workers.

This new room-temperature cleaning combination guarantees exceptionally long solution life—and offers additional economy because the extra expense of heat is unnecessary. Write now for bulletin describing the Houghto-Clean 439 & 440 combination for room-temperature power washing. Try it on your production line.

E. F. Houghton & Co., Philadelphia 33, Pa.

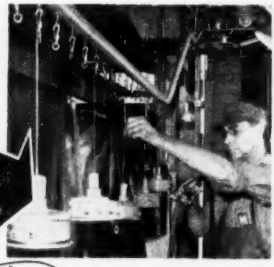
HOUGHTO-CLEAN 439 & 440
—cold cleaners produced by

E F HOUGHTON & CO.
PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

Ready to give you on-the-job service . . .

pers we attempted to describe various materials with which we have worked, many of them being developments of our own. We expect to continue to describe these barrel finishing materials, and, further, we hope to be able to supply you with actual samples of these various materials. All you need to do to secure these samples as they are described is to drop us a letter or post card asking us to place your name on our sample mailing list. In each month in which a material is described we will try to get your sample into the mail at the same time that PRODUCTS FINISHING is mailed to you. Then you will not only be able to read of the material and its application, but to have an actual sample before you.

NOW...
for the first time
AT LOW COST...
MORE PROFITS!
with



CHAINVEYOR
LIGHT CAPACITY OVERHEAD CONVEYOR
Fully Enclosed, Continuous Powered

FEATURES—

SIMPLICITY—Engineered to eliminate complicated, fast wearing parts, Chainveyor is revolutionary in simplicity of design. **TRACK**—1⅝"x⅛" slotted steel tube easily installed with minimum support. • **CHAIN**—Full ball bearing wheels mounted on steel side links, heat-treated for long life. • **CURVES**—15" radii provides extreme flexibility. • **TAKE-UP**—Adjustable spring take-up automatically maintains uniform chain tension. • **VARI SPEED DRIVE**—Positive sprocket tooth drive with easily replaceable shear pin protection. • **CAPACITY**—30# per pendant at 6" intervals, 60# at 12" intervals when supported by 2 pendants with cross bar attachment.—up to 400# chain pull.

DISTRIBUTORS IN ALL PRINCIPAL CITIES

If your conveyor requirement falls within its capacity—INVESTIGATE CHAINVEYOR. Write today for full information. **Dept. D**

United States Spring & Bumper Co.
4951 Alcoa, Box 2475 Terminal Annex
Los Angeles 58, California

Barrel Finishing Bibliography

A bibliography on a given subject constitutes the collected manuscripts of not merely a single commentator, but of a long list of writers all discussing the same subject or phases contributing to a better understanding of that subject. We have set for ourselves the task of gathering together all of this material pertaining to barrel finishing procedure, and it will be incorporated into these discussions as we go along. Much of this material we already have on file, and we feel sure you will be interested to note the

LOW COST IRIDITE® FINISHES

for zinc, cadmium, aluminum and cuprous metals

provide corrosion resistance

paint base

choice of appearance

And they are easy to apply! Just a simple chemical dip for only a few seconds produces the coating.

LOW MATERIAL AND SHIPPING COSTS

combine to make Iridite the most economical chromate finish you can buy. Many Iridite chemicals are packed in powder form, thus can be shipped to you in steel pails at freight savings of up to 75%! Pails take less storage space, are easier to handle, eliminate carboys, need not be returned.

WHY NOT TEST IRIDITE ON YOUR PRODUCTS? Write for literature and send samples for free test processing. See "Plating Supplies" in your classified telephone directory or write direct.

Iridite is approved under government specifications.

ALLIED RESEARCH PRODUCTS
INCORPORATED
4004-06 E. MONUMENT STREET • BALTIMORE 5, MD.

Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals; ARP Plating Brightener.
West Coast Associate: [illegible]

growth of the understanding of barrel finishing procedure as we progress from year to year.

There is no secret respecting the instrumentality with which barrel finishing procedure is carried out. The whole field of barrel finishing equipment might easily be described in a single sentence, as "A revolving cylindrical drum or barrel." Some types are high and narrow while others are long and narrow. It is not so much the barrel you are using as it is your understanding of the possibilities for production with that particular type of barrel that often spells the difference between success or failure.

There is another field which we have been exploring which has had, so far as we know, little or no attention. That is the utilization of the by-product material of one manufacturer, which is of absolutely no further use to him, as a completely satisfactory medium for use in barrels for the finishing of metal products. This can generally be made available at a fraction of its first cost. Surely the more we can save on the finishing materials in the first instance the better will be our chances to lower our unit production costs and make barrel finishing more attractive as its possibilities become more generally understood.

TRY ME OUT
IN YOUR FINISHING
DEPARTMENT!
Improved
DETROIT
"HANDY TAC" RAG
NON INFLAMMABLE
The best way to remove all dust, lint and sand particles before painting. Detroit Handy "Tac" Rags are ready for instant use. Never harden or dry out. Save labor and materials. Improve the finish. Eliminate costly rejects.
Recommended by your trade everywhere!
Standard of the FINISHING INDUSTRY Since 1934
DETRO MFG. & SALES CO., CULVER CITY, CALIFORNIA

Those of you who have come into the fold of readers of PRODUCTS FINISHING in the past few years, and who are interested in barrel finishing, will know nothing of the discussions that have been previously published down through the past sixteen years. Hardly a week goes by but that we are asked whether we can supply either certain copies of certain issues, or in lieu of that, complete sets of PRODUCTS FINISHING in which these discussions have appeared. We can only say that the previous issues are for the most part now "out of print," and only in isolated cases might you be able to secure such copies. The public libraries in most of our larger cities have complete files of PRODUCTS FINISHING to which you might refer, but perhaps your best choice would be to present your problems directly, for in that way we can provide for you the latest information as to what is deemed best both in materials and procedure to guide you in your barrel finishing operations.

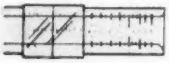
This research from the very beginning has concerned itself only with the selection and development of

here's a phosphatizer that **really cleans!**

DuBOIS ION-KOTE

rinses perfectly!
. . . provides a uniform coating
. . . phosphatizes!

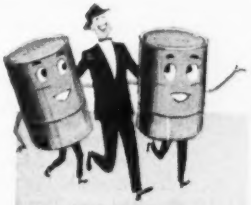
The DuBois Engineered Metal Cleaning program covers every phase of spray washer and immersion tank cleaning. For cleaning problems, here's the DuBois product: ION-KOTE . . . cleans better than any acid cleaner . . . it phosphatizes . . . provides uniform coating . . . gives complete, spotless rinse . . . deposits hard, dust-free, phosphate coating on metal, preventing rusting, increasing paint adherence.



FREE, handy plastic slide rule.
Write Dept. A.

The DuBOIS Co., Inc.
Cincinnati 3, Ohio Los Angeles 33, Calif.

DuBois warehouses and representatives are located coast-to-coast



TRIAL OFFER!

DuBois' exclusive Engineered Metal Cleaning Service includes this unusual trial offer. Get one drum of Ion-Kote on trial. If this product does not meet every one of the claims made for it, the unused portion of the drum can be returned for FULL credit.

barrels and appropriate finishing materials for use in barrels in the preparation of metal products for plating or for barrel finishing operations subsequent to the electrodeposition of the plate itself. We never have, and never will seek to invade the field of the metallurgist or electrochemist or electroplater. These are separate fields in themselves, and we find that we have a sufficient field for exploration when we confine ourselves to the actual mechanics of the various barrel finishing operations.

So we would ask of those of you who read this and are interested in barrel finishing in its various phases, to regard this discussion rather as a personal letter directed to you. Of the thousands of letters we have received down through the years many have provided the necessary problems to tax our ingenuity in seeking their solution, but it is only as new problems are presented from time to time that we of barrel finishing make a greater progress.

Du-Lite

"Gives our tools Sales Appeal"

BARNABY MFG. CO. of Bridgeport, Conn., reports: "Our close proximity to salt water has given us problems in rust prevention for many years. We have experimented with many black oxide finishes but none has proven as successful, safe, and inexpensive as DU-LITE—our tools have better sales appeal—our volume has been on the increase ever since we started using this modern, progressive oxide finish."

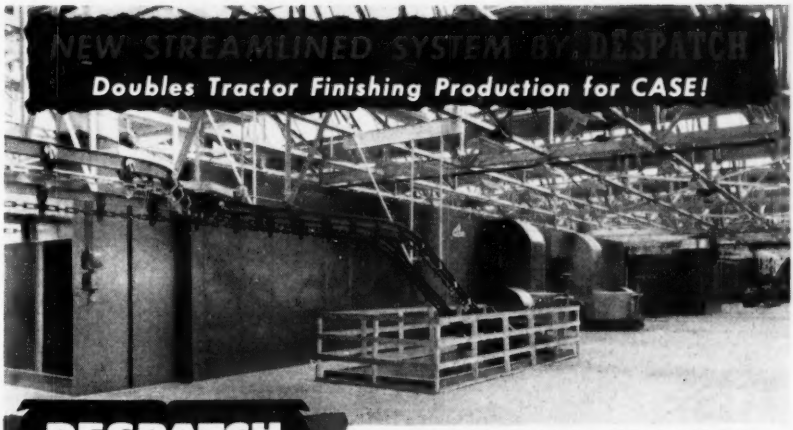
Depend on Du-Lite, the metal-finishing specialists, for the most efficient and economical cleaners, black oxide finishes and phosphate coatings. Write for full details on:

Du-Lite Black Oxide for Steel.
3-0 Black Oxide for stainless steel and malleable iron.
SD Compound for removing occluded salts.
Phosteel and Phospray for phosphatizing steel, iron or zinc.
Du-Lite Non-Acid Black Oxide for copper and copper alloys.
Dynakleen for bright cleaning all metals.
Kwikseal and Proctoil water displacing oils.

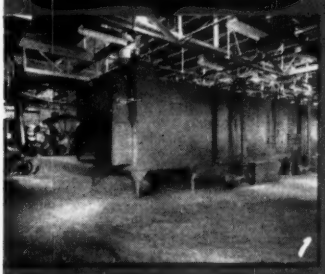
Or send us samples of parts and we will process them for your approval.

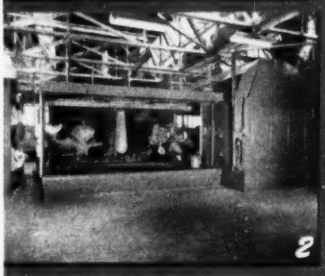
Du-Lite DU-LITE CHEMICAL CORP.
MIDDLETOWN • CONN.
METAL FINISHING SPECIALISTS

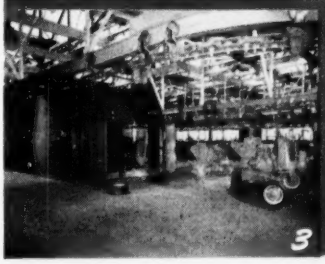
PAINT HEATERS. An illustrated folder being distributed by **Bede Industrial Products, Inc.**, 1110 Brookpark Road, Cleveland 9, Ohio, describes the paint heating equipment furnished by the company. How the use of paint heaters for the spraying of various finishes at controlled, elevated temperatures can save time and material is explained in the folder.



DESPATCH







A FINISHED TRACTOR *every 5 minutes!*

Tractor finishing at the J. I. Case plant, Rock Island, Ill., has been doubled and quality of finish raised to a new high with this modern finishing system designed, built and installed by Despatch. Housed in a new, well lighted building the system is giving Case tractors a rich, durable baked on finish in the familiar Case Flambeau Red. The operation includes washing, painting and finish baking.

1. 600-ft. continuous conveyor enters 3-stage washer where tractor gets a 160° F. phosphate wash, cold water mist bath, and 180° F. hot water rinse.
2. Tractors are spray painted in staggered water wash booths. Paint is heated to 170° F. —eliminates need for thinner and allows closer spraying to cut down overspray.
3. A lasting, weather resistant finish is baked on at 225° F. in this 96-ft. oven heated by steam from the Case central steam plant. Emerging from the oven, tires and other accessories are added.

Let Despatch Modernize Your Finishing Operations

Replace your obsolete finishing system with a modern Despatch system engineered to fit your needs. Increased production, higher quality and lower costs will result.

Write, wire or call Dept. C for details.

DESPATCH

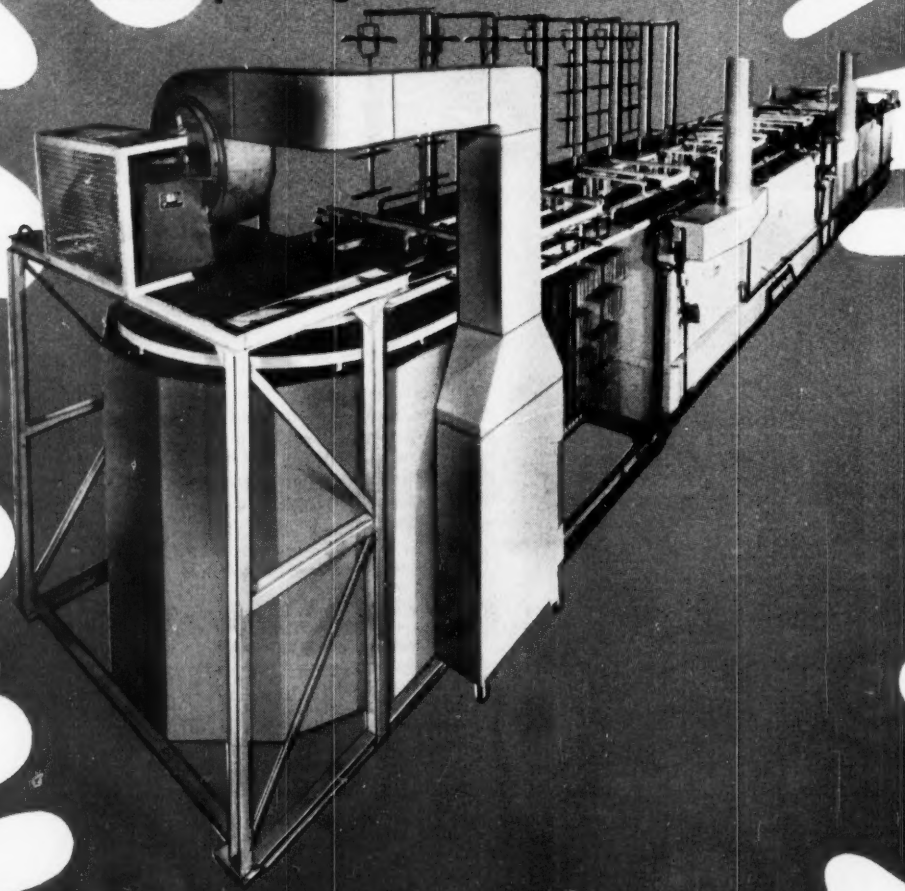
Minneapolis Office: 619 S. E. 8th Street

Chicago Office: 4334 N. Broadway

Sales Offices in all Principal Cities

It's a Revolution in

Wagner Brothers fully automatic electroplating machine



Plating Automation

A complete new approach to automation in plating—

Fully Engineered-
Proven Principles-
Now in Plating Production

CUTS LABOR — You load it and press the button — your Wagner does the rest.

CUTS DOWNTIME — All working parts are readily accessible for servicing — Built in sections for quick inspection and service without disturbing work or other sections.

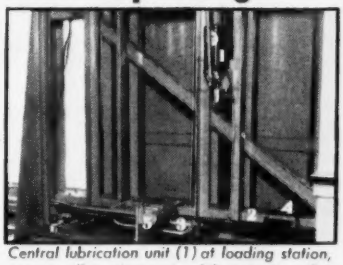
CUTS POWER NEEDS — A Wagner Fully Automatic operates on one motor of less than half the power needed for any other electroplating equipment of comparable capacity.

CUTS CONTAMINATION — No grease-loaded mechanisms are located above your tanks, eliminating a major plating problem.

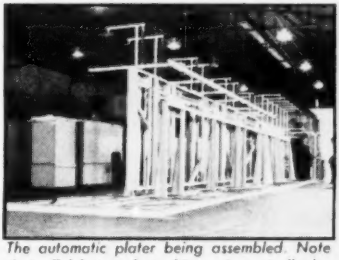
CUTS SPACE NEEDS — Your Wagner Fully Automatic takes less floor space — less ceiling height. For example, it will handle a 48″ rack under a *12-foot ceiling.*

AND DOZENS OF OTHER cost cutting features. It's all new — It's fully proven — It's in production. It's Wagner Brothers Brand New Fully Automatic Plater.

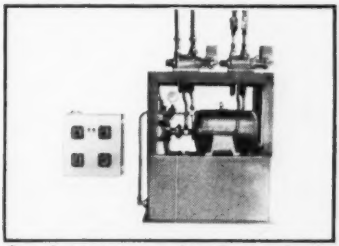
Wire your nearest Wagner representative or call direct at once and get complete information on this revolutionary and efficient New Approach to electroplating automation.



Central lubrication unit (1) at loading station, greases all moving parts while operating. Reciprocating carriage (2) is actuated by simple trouble-free cylinder (3). Decelerating cams (4) operate control valve (5) to assure smooth, long life operation.



The automatic plater being assembled. Note that all lubricated machinery is centrally located—not over tanks—for easy servicing and to preclude contamination of fluid in tanks. This unit is in three sections for economical transportation.



One electric motor supplies all power for the hydraulically driven automatic plater. The power unit and control panel can be installed at any convenient point in the plant for convenience in installation, servicing and operation.

Wagner **BROTHERS, INC.**

432 MIDLAND AVE. • DETROIT 3, MICH.

CHICAGO • ROCHESTER • CLEVELAND • CINCINNATI • INDIANAPOLIS

Finishing Clinic

In this department are presented some of the questions submitted by readers together with suggested solutions of the problems outlined.

Question. *By what methods may we apply silver spray on ornaments such as buttons in both silver and gold finishes? Please advise us as to the names of the suppliers of the chemicals and processes involved.*

R. S.

Answer. It is likely that the coating to which you refer in your letter can be applied in one of the following three ways:

1. By coating the plastic surface with a conducting material and then electroplating the metal onto the plastic object. We are referring you to two sources of detailed information about this process.
2. The coating may be applied by the vacuum vapor process, or the "sputtering" process. We are enclosing tear sheets from a previous issue of PRODUCTS FINISHING in which this process was described, and in which several manufacturers of the equipment necessary are listed.
3. The coating may be a metallic lacquer, sprayed on and baked. For information regarding paint finishes, we should like to refer you to the following companies (names furnished).

fc

Question. *We would very much appreciate any assistance you may be able to give with regard to details which should be given attention when installing new plating equipment. We are also interested in any magazine*

article reprints, bibliographies or book writeups.

We desire to emphasize the need for providing: a d e q u a t e ventilation; drains; conveyorizing where practical, of racking, unracking, rack stripping, and inspection operations; for the placing of motor generators or rectifiers in close proximity to plating equipment; in our case, possibly stressing advantages of having zinc die casting facilities closely adjacent to plating machine proper on same plant floor area; and possible advantages of having chemical laboratory control facilities closely adjacent to plating machine proper.

Summing up the above, will you please give any assistance possible through highlighting factors w h i c h should be given consideration or emphasized before installing zinc die cast plating equipment.

J. O.

Answer. In response to your telegram we are sending you a reprint, "Diaphragm Tanks Promote Plating Progress," and tear sheets of the articles, "Production Plating of Die Cast Automotive Trim," and "Conveyor Applications in the Finishing Industry," Parts I and II, which appeared in PRODUCTS FINISHING. These articles will cover many of the points mentioned in your telegram.

Adequate r o o m ventilation, adequate sized and acid resisting drains, proper location of racking, unracking, rack stripping (rack coating) and inspection operations are subjects for an engineering study and cannot be covered too well by correspondence. The decision to place motor generators or recifiers in close proximity to plating equipment is a choice between providing a separate room for this equipment where it can be kept clean and free from corrosive fumes, and expecting a somewhat higher power cost due to the loss incurred in long power leads from power source to plating equipment.

Unless handling considerations dictate that zinc die casting facilities and polishing and buffing equipment be located adjacent to the plating machine, it is not considered advantageous to so locate this equipment by reason of air borne impurities which are carried into the various plating solutions. The normal practice is to locate the zinc die casting facilities in one room, locate polishing and buffing equipment in another room adjacent perhaps to the plating department proper. Chemical laboratory control facilities normally may be located in any convenient area; certainly not too far from the plating installation proper, but not necessarily immediately adjacent.

A plating installation of substantial size should be made only after adequate and thorough engineering studies of many of the details outlined in your telegram. Such a study can be accomplished only after careful consideration on the part of plant personnel and sales engineers from the various plating supply and equipment companies, if thoroughly satisfactory results are to be expected.

DO YOU HAVE A FINISHING PROBLEM?

The editorial staff of PRODUCTS FINISHING is prepared to aid you in the solution of your problem. There is no charge for this service.

The most AMAZING FINISH DEVELOPMENT

COLOR-FLECKED PLEX

M. & W. CO.

SINCE 1876

NOW — you can finish your product with the warmth of texture, the richness of color — in subtle tones-on-tone, or a circus of brilliant colors — sprayed at ONE TIME, from ONE GUN, in ONE COAT that covers completely surface flaws and blemishes!

PACK A NEW SALES PUNCH IN YOUR PRODUCT

NEW! THE UNIQUE SALES APPEAL OF RICH MULTICOLOR!

Color-flecked PLEXTONE brings you endless new color possibilities . . . from subtle tones-on-tone to brilliant spatter effects in a wide range of colors . . . sprayed from ONE GUN at ONE TIME! Colors never run nor intermix! Here's new sales appeal for industrial products, household appliances, for ALL products. If you wish, a custom combination can be your product's "color signature!"

NEW! AN UNBELIEVABLY RUGGED FINISH!

Color-flecked PLEXTONE is designed for hard wear — its colors go all through the tough protective film! Highly resistant to chipping, cracking, abrasion . . . it defies alcohol, grease, oil! You can wash it, scrub it, even scour it with abrasive cleansers . . . without surface damage! And if extreme abuse demands a retouch job . . . a quick flick of the spray gun defies detection! Ends "careless handling" worries . . . cuts customer complaints. PLEXTONE gives you far longer wear.

NEW! CUTS FINISHING COSTS UP TO 35%!

Color-flecked PLEXTONE *completely eliminates* many costly pre-finishing steps! On wood, you may save sanding, sealing, priming and one or more finishing coats! On metal, you may save filling, glazing, sanding of fillers and up to three prime coats! On any surface, no more than one prime coat and one PLEXTONE coat are ever required! PLEXTONE'S textured finish hides surface flaws and blemishes, lets you use less costly materials! Best of all, PLEXTONE uses ordinary spray equipment and techniques!

NEW! THE MODERN PRODUCT FINISH WITH THE WARMTH OF TEXTURE!

Color-flecked PLEXTONE adds dramatic interest to broad, flat, monotonous surfaces. And here again, endless possibilities . . . from light, rippled texture to heavy pebbly effects . . . from the delicacy of rich wood to the grain of leather! Practical too, because PLEXTONE texture hides surface defects in one easy spray application.

WHAT *COLOR-FLECKED* PLEXTONE IS

A completely new, patented multicolored industrial finish. The multiple colors exist separately within PLEXTONE; they do not merge nor blend. When sprayed, the colors in PLEXTONE form an interlacing color network. Each color is "through-the-film."

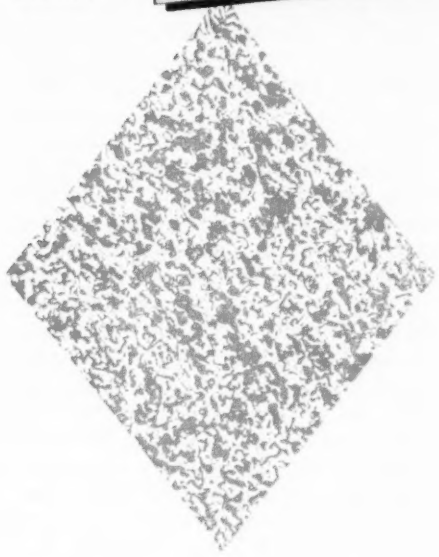
USES Manufacturers from coast to coast are using PLEXTONE to finish such products as Caskets • Displays • Furniture • Kitchen cabinets • Machinery • Office panels and partitions • Sewing machine tables • Silver chests • Signs • Store fixtures • Switch gear housings • Table lamps and shades • Toys • TV cabinets • Wallboard.

IN 100 YEARS!

TONE®

(Mfd under U S Pat #2591904)

TEXTURED ENAMEL



Green PLEXTONE, color-flecked with white, one of twenty standard premixed colors available for prompt shipment. Also available in solid colors for intermixing, and in custom colors.

FACTS

ABOUT AMAZING *COLOR-FLECKED* PLEXTONE

- Can be applied to solid wood, veneers, plywood, wallboards, composition materials, paper, cement, plaster, phenolic impregnated papier-mache forms, plastics, woven fabrics, and metals such as cast iron, steel, aluminum, brass, copper, zinc
- Easy to apply with ordinary spray equipment—no special spray techniques required . . . no spray dust
- Color pattern and texture hide surface imperfections
- Permits use of cheaper base materials in products
- Preparation time eliminated or reduced to a minimum
- Comes ready-to-use in multicolors or in solid colors for intermixing by the user
- Available in non-toxic grades
- Particularly valuable in finishing porous materials which tend to absorb ordinary finishes

MAAS & WALDSTEIN CO.

2119 McCARTER HIGHWAY, NEWARK 4, N. J.

Midwest Division: 1658 Carroll Ave., Chicago 12, Ill.
Pacific Coast Division: Smith-Davis Company, 10751 Venice Blvd., Los Angeles 34

PIONEERS IN PROTECTION

PLEXTONE®

PROVE IT YOURSELF!

Mail Coupon today

Send for *FREE* color chips. See just a few of the many beautiful color combinations possible with color-flecked PLEXTONE. Mail coupon NOW for your FREE samples and application data.

MAAS & WALDSTEIN CO., PLEXTONE Division
2119 McCarter Highway, Newark 4, New Jersey

Gentlemen: Please send me *FREE* color chips, PLEXTONE samples, and application data at once.

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

How To Maintain Level with Simple

By PAUL E. MILLER*
Miller Electroplating, Inc., Evansville, Indiana

IT WAS several hours after one of our chromium tanks had been filled with water on the second floor, that I raced up the stairs and stood before the damage and mess of an unwatched kettle! To call such a situation "black," neglect, forgetfulness or a mistake would never be a cure. I determined to make a device of some kind that would automatically maintain a constant tank solution level, and that would also be entirely free of mechanical or moving parts.

After a number of experiments, we produced a workable leveling device. The only drawback was the fact that we found it necessary to have a pipe fitting opening in the side of the tank. This was not an objectionable feature on a great many tanks, but on some tanks it was not practical. After observing the action of this device, we began to realize a common fact of physics. It is simply that the average plating solution is much heavier than pure water, and would therefore support a column of pure water higher than its own level, if it were properly cased in. With this fact in mind, we made a correction in our device and now have a simple, foolproof level control that can be applied to any plating tank and will maintain a constant level. The entire fixture may be hung over the top edge of any tank.

The sketch shown here is almost self-explanatory. At the top of the fixture there is an ordinary iron pipe tee (A) resting at the tank edge. This tee should be ¾ or 1 inch pipe size. Screwed into this tee is a short piece of pipe (B) with a hose attached to it, the hose (C) to prevent electrical grounds. To the bottom of this tee is fastened a pipe (D) of either one of two different kinds of material. In a great many solutions, the pipe (D) projecting down into the solution can be ordinary black iron pipe. This can be used in any cyanide bath or electrocleaner. For a nickel or chromium solution, we are using lead pipe. Here we secure a piece of heavy duty lead pipe which can be fastened into the tee with the aid of a nipple (E) soldered into the lead pipe, and the nipple screwed into the tee. Into the top of this tee the make-up water can be dropped (F), or permitted to flow into this opening.

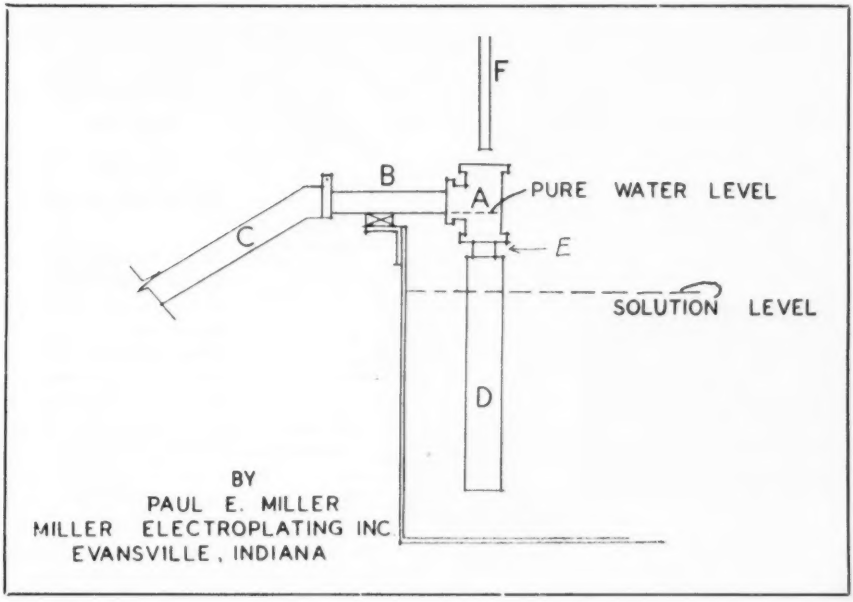
It should be borne in mind that the top of this tee must be left open,

* Mr. Miller is president of The National Association of Metal Finishers.

Constant Tank Solution Foolproof Fixture

the water being permitted to drop into it. If a tight connection is made at this point, a siphoning action would start, and this would draw the solution out of the tank and into the sewer, or onto the floor. This feature of the device is of the utmost importance!

The trick of the whole thing is the length of the pipe (D) protruding down into the plating solution. Solutions 30 inches deep or more work the best. The longer the pipe is, the lower the solution level will be. We have found that this length is best determined by trial and error. We have some idea of how long the pipe should be from experience, but have found the best method is to set the apparatus into a plating tank with pipe (D) going down near the bottom, and then, as we want to raise the solution level, we remove the apparatus and take off one or two inches of the pipe at the bottom. The idea is that it will lessen the weight of the column of pure water, and as this weight is reduced, the plating bath



will rise until the desired solution level is found. The surplus water being fed in at (F) will then pass out the overflow (B) and hence the device becomes automatic.

We also made another discovery which we have found invaluable. We introduced, as a source of clean water, the condensation from our steam heating coil. This condensation is naturally pure water, and when introduced into a plating bath will have no effect upon the pH of the bath. This feature alone has been well worth all our trouble in working out this simple device. This is more true in localities where the source of water contains many undesirable minerals. Formerly, every time our nickel tank was filled with water it was necessary to correct the pH.

The only manner in which this level control might cause a solution to overflow would be the development of a leak somewhere between the tee (A) and the bottom of the feeder pipe (E and D). Of course, a leaking heating coil will also cause an overflow.

In case new anodes or chemicals are added to the bath which might have a tendency to raise the level of the solution, the device will prevent any additional water being added until the bath level has again gone down to the pre-determined level.

This leveler is now in use in every plating and cleaning tank that we have in our plant. In the case of cleaning solutions of very light density, such as those used for cleaning zinc die castings, it is necessary that the pipe (D) extend to just about the bottom of the solution; otherwise

FLAT OR CONTOURED PRODUCTS SURFACE FINISHED WITH PRECISION

Wrenches, pliers, screw drivers, ax heads and other hand tools are surface finished most efficiently on this machine. It is designed for either magnetic or mechanical holding fixtures.

Write for details

CLAIR MANUFACTURING CO., INC.
Specialized Machine Equipment For Glazing and Polishing Operations
OLEAN, N. Y.

off again - on again - clean again with

"LIQUID ENVELOPE"

STRIPPABLE BOOTH COATING

Spray "Liquid Envelope" on a clean booth. When over-spray accumulates, break coating and peel off in great big sheets. Re-spray—and you have a clean booth in minutes. That's the low cost way to keep spray booths firesafe, lighter, better ventilated, too.

NEW USERS: Order a 5 gallon Test-Sample at the drum-lot price. That's the way hundreds of smart operators learned how to save time and money on booth cleaning.

BETTER FINISHES & COATINGS, INC.

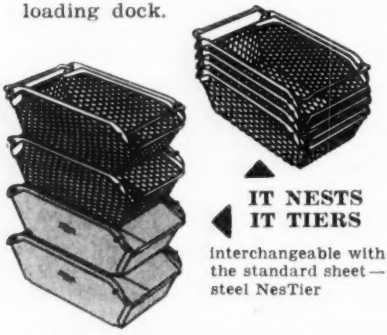
268 DOREMUS AVENUE, NEWARK 5, NEW JERSEY
122 EAST 7th STREET, LOS ANGELES 14, CALIF.

DISTRIBUTED BY

Abrasive & Supply Co., Detroit, Mich.
Aviation Lubricants Co., Inc., San Diego, Calif.
Bay State Spray Equipment Co., Springfield, Mass.
C & H Supply Co., Seattle, Wash.
The Dean & Barry Co., Columbus, Ohio
Eastern Spray Equipment
c/o Mitchell-Love, Philadelphia, Pa.
Edgcomb Steel of New England, Inc.
Milford, Conn.
Eley's, Newport News, Va.
John Henry Foster Co., Minneapolis, Minn.
Franklin Supply Co., Providence, R. I.
General Spray Equipment Co., Boston, Mass.
H. J. Gettemuller Co., Inc., Baltimore, Md.
Globe Chemical Co., Louisville, Ky.; Cincinnati, O.
Grapek Co., Newark, N. J.
Harstan Chemical Corp., Brooklyn, N. Y.
The Hubbard Co., San Francisco, Calif.
Kellermann Paint Co., New York, N. Y.
Koehler Rubber & Supply Co., Cleveland, Ohio
The Lea Manufacturing Co., Waterbury, Conn.
The Leonard Co., St. Louis, Mo.
Nelson Industrial Supply Co., Grand Rapids, Mich.
Metal Goods Corp., Denver, Col.; New Orleans, La.;
North Kansas City, Mo.; St. Louis, Mo.;
Dallas, Texas; Houston, Texas
Mid States Industrial Corp., Rockford, Ill.
Vic Miner Co., Toledo, Ohio
O'Donohue Sales Co., Milwaukee, Wis.
Paints & Lacquers, Inc., Chicago, Ill.
Plastic Paper Co., Los Angeles, Calif.
Porter Paint Co., Louisville, Ky.
Protective Prod. Distributors, Hamburg, N. Y.
R. W. Renton and Co., Cleveland, Ohio
Hugh Russel & Sons, Ltd., Montreal, Can.
Scobell Chemical Co., Rochester, N. Y.
Sprayway Co., Los Angeles, Calif.
Supplee-Biddle-Steltz Co., Philadelphia, Pa.
(Industrial Division)
Tanner and Co., Indianapolis, Ind.
In Europe:
Janson & Nicholson, Ltd., London, Eng.

designed for
degreasing
and *used* for
everything

Plant engineers have discovered that the NesTier Expanded Metal Basket, extremely light and remarkably strong, is perfectly adapted to all round use as a tote box — the perfect container for small parts from stockroom to loading dock.



IT NESTS
IT TIERS

Interchangeable with the standard sheet — steel NesTier

Now small parts may be routed through every plant operation without changing containers. NesTier baskets serve as flexible stockroom fixtures, may be transported tiered or nested on pallets, are adaptable to roller or overhead conveyors or may be carried easily by hand. Require a minimum of storage space.

Write today for bulletin describing the NesTier System.

NESTIER
IT NESTS-IT TIERS
The Chas. Wm. Doepke Manufacturing Co., Inc.
Rossmoyne, Ohio
Metal Specialties Division

the solution level will be too high.

I suggest that anyone installing this device in a plant should, if possible, consider the use of the condensate from the steam heating coils. This is pure water and adds nothing harmful to any bath. If this method is not practical, then a small quantity of good water should be permitted to drip into the top of the receiver (A) during operating hours, and solution level problems will be solved.

I have also put the overflow from (C) to work in a swill tank, level automatically maintained, that saves us a considerable amount of metal salts and plating solution. One of our chrome tanks showed a saving of 50 per cent in chromic acid. If further information is desired or requested, I shall be glad to write a supplement to this article explaining this addition.

I have always been interested in knowing how many people read and apply material such as this. If any installations should be made as a result of this article, I would appreciate knowing about them.

Note: This article first appeared in "National Plating News," and is presented here by permission of that publication.

Corrosion Resistance of Galvanized-Steel-Stitched Aluminum Alloys

THE National Bureau of Standards, at the request of other government agencies, has investigated the corrosion resistance of sheets of

treat

TOXIC CHROMIUM WASTES

by **REDUCTION**

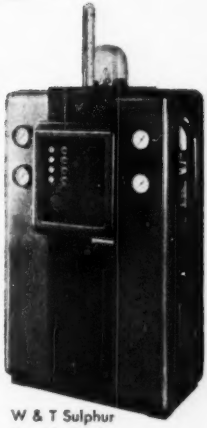
Chromium wastes, because of their toxicity and high color, are a problem for industry and an annoying source of stream polution.

Reduction of toxic hexavalent chromium wastes to the trivalent form with sulphur dioxide, and subsequent precipitation with alkali, has become widely accepted in the plating industry. Wallace & Tiernan offers not only the equipment for feeding sulphur dioxide but also the experience of many installations to successfully carry out the reduction process.

CYANIDE WASTES

Wallace & Tiernan's service to the metal finishing industry also includes experience and equipment for effective destruction of cyanide wastes by alkaline chlorination. Automatic control equipment assures complete cyanide destruction with minimum chemical costs.

Write today for additional information on Wallace & Tiernan equipment for the reduction of toxic chromium wastes with sulphur dioxide and the oxidation of cyanide wastes by alkaline chlorination.



W & T Sulphur Dioxide Feeder

WALLACE & TIERNAN
COMPANY, INC.
CHLORINE AND CHEMICAL CONTROL EQUIPMENT
NEWARK 1, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

S-78

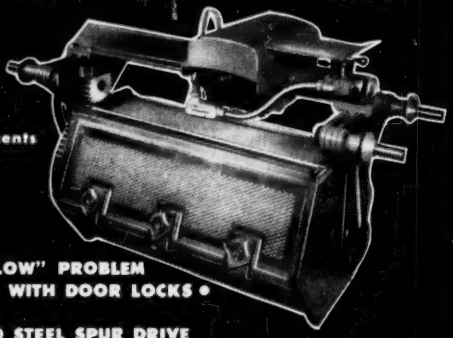
unclad and aluminum-clad 24S-T3 aluminum alloy stapled together with galvanized steel wire. Stapled specimen sheets of this high-strength aluminum-copper-magnesium alloy (containing about 4½ per cent copper and 1½ per cent magnesium) were exposed in a marine atmosphere and in the tidewater. Results for exposure periods up to 37 months indicate that both types of sheet joined in this fashion have satisfactory corrosion resistance for service in marine atmospheres. Where the installation is subject to frequent wetting by sea water, however, only the alclad alloy appears satisfactory. The Bureau's study was conducted by Fred M. Reinhart of the NBS corrosion laboratory, under the sponsorship of the National Advisory Committee for Aeronautics, the Navy Bureau of Aeronautics, and the Wright Air Development Center.

Galvanized-steel-wire stitching, or stapling, as a means of joining aluminum sheets has been used increasingly since early in World War II. Fast and economical, this relatively new method has given good results in the construction of non-load-bearing walls and partitions in the interior of aircraft. Although the joints are not inherently as leakproof as those made by other methods, the use of suitable sealing materials can overcome this objection. Wire stapling of sheet metal is reported to have been extended more recently to non-aircraft applications, including interior panels in buses and in houses. Thermally insulated wall panels are readily fabricated by stapling layers of insulated material to

. . . the result of 10 years of development

the 2SHOMC*

Beware of patent infringements and inferior imitations.



NO "COLD FLOW" PROBLEM WITH DOOR LOCKS •

• DIRECT HARDENED STEEL SPUR DRIVE (NO "FLABBY" CHAINS)

• ONE-PIECE BEARING HOUSING

• SUPER HIGH GRADE STAINLESS ALLOY BEARINGS

ALL LAZO PLATING BARRELS REG. UNDER U.S. PAT. 2,491,925 AND CAN. PAT. 445,821.

* This is a patented unit, as are all LAZO plating barrels, registered exclusively under the name of HARDWOOD LINE MFG. CO.

LAZO PLATING PRODUCTS

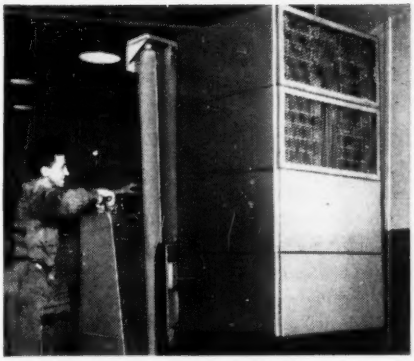
HARDWOOD LINE Mfg. Co.

Lucite Cylinders for Complete Cycle Plating

Unexcelled Service

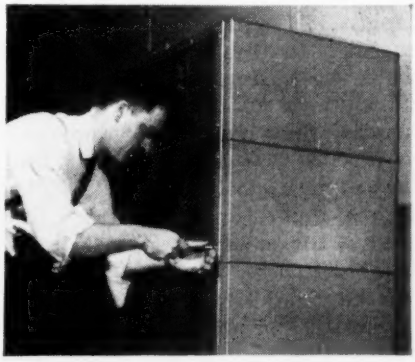
2022 N. CALIFORNIA AVE. • CHICAGO 47, ILLINOIS • Dickens 2-9393

Originators of Ribless Plating Barrels

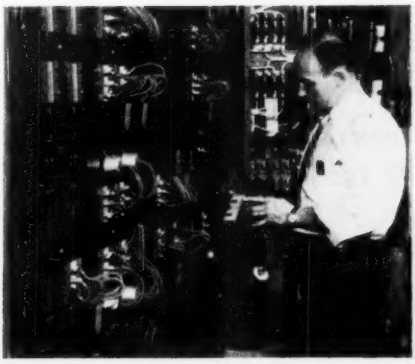


Three Ways You Save With G-E Plating Power Supplies

1 SAVE ON INSTALLATION COSTS with G-E Plating Power Supplies. No special foundations are required. Simply move rectifier unit into place with a fork truck, make connections, and it's ready to operate.



2 SAVE ON MAINTENANCE COSTS. A cooling fan, requiring occasional lubrication, is the only moving part. All parts are corrosion resistant. Cooling design minimizes intake of dirt, dust and corrosive fumes.



3 SAVE ON EQUIPMENT LIFE. At rated output G-E copper-oxide rectifier stacks last almost indefinitely. On test stands G-E selenium rectifier stacks have maintained rated output for over 60,000 hours.

General Electric Plating Power Supplies are available for laboratory plating, barrel plating, and with manual or automatic regulation. For more information contact your nearest G-E Plating Rectifier agent or G-E Apparatus Sales Office, or write Section 464-13E, General Electric Company, Schenectady 5, New York.

GENERAL ELECTRIC

KEEP SPRAY BOOTHS SAFER FROM FIRE!

WITH NON-INFLAMMABLE

BOOTHCOTE #4

FOR DRY WALL BOOTHS

PERFECT LUBRICANT FOR FORMS

BOOTHCOTE #5 FOR WATER WASH BOOTHS

PERFECT RUST PREVENTATIVE

INSIDE STORAGE—OUTSIDE STORAGE

Makes frequent cleaning easy. Pre-mixed, ready to use, safe to store. Saves time, labor, no flaking off. Spray or brush on clean booth. When desired, operator peels off overspray in sheets. Advocated by insurance companies.

MONEY-BACK TRIAL OFFER: 5 gals. $6.25

KLEENCOTE WATER WASH COMPOUND

BREAKS UP PAINT—NO CLOGGED UP SYSTEMS

HYGRADE'S STERLING CREME
HYGRADE'S SKIN GUARD

protects hands, face and arms from paint, grease, ink, etc. penetrating skin. Soil washes off easily without harsh solvents or cleaners. Paint and grime washes off. Reduces blackheads and skin blemishes. **12 — 7 oz. Jars — $6.00**

HYGRADE'S STERLING CLEANER
HYGRADE'S HANDY SOAP & CLEANER
(WATERLESS HAND CLEANER)

dissolves grease, grime, fresh paint, tar, printers' ink, shellac, mastic cement, etc. without water. Use for cleaning refrigerators, ranges, etc., before shipping. **12 — 14 oz. Jars — $7.08**

All prices f.o.b. Buffalo

HYGRADE

FOOD PRODUCTS CORP.

Industrial Div., 18 Stetson St., Buffalo 6, N. Y.

the metal sheeting; a single stapling operation can fasten the insulation to the metal sheets as well as joining the sheets to each other.

In the NBS work, stapled panels of each material (24S-T3 and alclad 24S-T3) were subjected to intermittent sea-water immersion by exposing them in the tidewater. Other panels of each material were exposed in a marine atmosphere but not subjected to wetting. Panels were observed periodically and were removed for macroscopic and microscopic study after exposure periods of 6, 11, 22, and 37 months.

The unclad 24S-T3 panels exposed to tidewater deteriorated rather rapidly. After 2 months the zinc coatings on the steel staples were white with corrosion. After 6 months the zinc was entirely gone from the staples, which by this time were covered with dark adherent rust. Microscopic inspection at 6 months showed that directly underneath the staples the sheets had cracked by stress corrosion, the cracking having started at the faying surfaces of the sheets. By the end of 37 months the staples were badly rusted and pitted, and the sheets in the area of the staples had suffered severe crevice corrosion, intergranular corrosion, and stress corrosion cracking.

The alclad 24S-T3 panels stood up much better in the tidewater exposure. The attack on the zinc coating of the staples was much less severe. Even after 37 months some of the zinc-iron alloying layers were still present and the underlying steel had barely begun to pit. There were no corrosion products between the faying surfaces of the alclad

"TRICLENE" D

(TRICHLORETHYLENE)

– the modern degreasing solvent

Made by Du Pont • Pioneer Manufacturer of Degreasing Fluids

Ever since Du Pont chemists first developed synthetic solvents for vapor degreasing, they have worked to provide industry with the best possible product. Today's "Triclene" D is just that—the most effective degreasing solvent Du Pont has ever produced. This rugged solvent incorporates *all* the advantages of over 20 years' technical and practical experience.

"Triclene" D is now successfully used in thousands of plants. It thoroughly removes most of the stubborn buffing compounds, greases and lubricating oils . . . assures excellent results even in high-speed operations. And with "Triclene" D goes expert technical assistance from Du Pont and your local distributor. For this friendly service, simply write: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

DISTRICT OFFICES: Boston • Charlotte • Chicago • Cincinnati Cleveland • Detroit • El Monte (Calif.) • New York • Philadelphia

DU PONT
first in solvents for
VAPOR DEGREASING

DU PONT
REG. U.S. PAT. OFF.

Better Things for Better Living . . . through Chemistry

SEND IN THIS COUPON FOR FREE BOOKLETS

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department, Wilmington 98, Delaware
Please send me the literature checked below:

- ☐ "How trichlorethylene is used in metal cleaning".
- ☐ "Triclene" D — an improved vapor degreasing solvent.
- ☐ "Metal degreasing — standard practices."
- ☐ Du Pont publication, "MODERN METAL FINISHING". (Please add my name to the mailing list).

NAME ..... POSITION .....
FIRM .....
ADDRESS .....
CITY ..... STATE .....

sheets, indicating little if any crevice corrosion. Although most of the aluminum cladding had disappeared from the faying surfaces at 11 months, the core material had not been attacked even at 22 months. Only after 37 months exposure did the core show pitting and—but only in one area—stress corrosion.

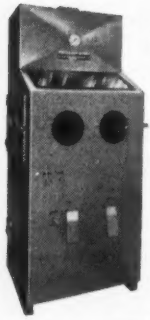
When exposed in a marine atmosphere, there was very little corrosion of either the alclad or the unclad alloy, even after 37 months. The staples on both specimens were still coated with grey corrosion products, indicating that zinc or zinc-iron alloy layers were still present. None of the staples were significantly pitted. The faying surfaces of the 24S-T3 panel were slightly pitted, but no evidence of intergranular corrosion or stress corrosion cracking was found. The protective aluminum layers on the alclad 24S-T3 sheets were pitted at a few areas of the faying surfaces, but in no case had the pits corroded to half of the thickness of the layers. Crevice corrosion was quite mild—there were only small amounts of corrosion products between the faying surfaces of the unclad panels and practically none between those of the alclad panels.

Because of the crevice corrosion that developed, in varying degrees, at the faying surface of the joints, the application of a protective coating to these surfaces appears to be desirable for maximum service life as well as for leakproofing the joint. A non-absorbing type of sealing compound or paint can be applied to the joints either during or after the joining operation.

—National Bureau of Standards Summary Technical Report No. 1787.

Pressure Blast Application #192

ONLY PRESSURE BLAST GIVES YOU 2-SPEED WET-BLASTING!



Formerly, 6 minutes were spent buffing and polishing the "as cast" handle to the left in order to achieve the luster shown on the handle to the far right. A 20 second primary finish of the "as cast" handle by Pressure Blasting now reduces polishing time by 50% !

FREE . . . Learn what PRESSURE BLAST can do for you! Die and Mold Polishing, Blending Grind Lines, Deburring, Heat Treat Scale Removal, Honing of Cutting Tools, Pre-plating Cleaning . . . Hundreds of proven, money-saving applications!

Write for our new 8 page fully illustrated Booklet . . . or send samples of work you want tested to:

MODEL A . . . ONE OF 4 STANDARD UNITS. CUSTOM MACHINES DESIGNED TO FIT SPECIAL REQUIREMENTS.

The CRO-PLATE Company, Incorporated

747-6 Windsor Street • Hartford 5, Conn.

When you can SEE the difference

. . . IT'S TOO LATE!

Prime with STANTITE!

One switch box was primed with Stantite, the improved wash primer, before top coating; the other was not. Exposure discovered the difference and proved Stantite's strong resistance to corrosion and rust creep. And after years of research in Stanley laboratories there are other differences you can see right off . . . Stantite handles easier; it's easier to mix and easier to spray. Add these advantages to its excellent adhesion to all surfaces and its adaptability to most top coats. The result: a wash primer that insures your finish. For full details about spraying Stantite and clear Stantite for dipping write Stanley Chemical Co., 31 Berlin Street, East Berlin, Connecticut.

STANLEY

Industrial Coatings

STANLEY CHEMICAL

LACQUERS SYNTHETICS JAPANS ENAMELS

INDEX OF ACP CHEMICALS FOR METAL PRESERVATION AND PAINT PROTECTION

METAL	OPERATION	ACP CHEMICAL
ALUMINUM	*Cleaning*	"DEOXIDINE" "DURIDINE" "ACP RIDOLINES AND RIDOSOLS"
	Preparation for Painting	"ALODINE" "DURIDINE" "DEOXIDINE"
	Protection from Corrosion	"ALODINE"
GALVANIZED IRON, ZINC, AND CADMIUM	*Cleaning*	"DURIDINE" "ACP RIDOLINES AND RIDOSOLS"
	Corrosion Proofing	"ZINODINE"
	Paint Bonding	"ZINODINE"
	Phosphate Coating, in Preparation for Painting	"LITHOFORM"
	Soldering Flux	"FLOSOL"
	Chromate Coating, in Preparation for Painting	"CROMODINE"
	Cleaning	"ACP RIDOLINES AND RIDOSOLS"
	Cleaning for Painting	"DEOXIDINE" "DURIDINE"
	Coating with Copper	"CUPRODINE"
	Drawing and Extrusion	"GRANODRAW"
	Paint Bonding	"CROMODINE" "DURIDINE" "GRANODINE" "PERMADINE" "THERMOIL-GRANODINE"

STEEL	*Paint Stripping*	"CAUSTIC SODA AND SOLVENT NO. 3"
	Phosphate Coating, in Preparation for Painting	"DURIDINE" "GRANODINE" "PERMADINE" "THERMOIL-GRANODINE"
	Phosphate Coating, to Protect Friction Surfaces	"THERMOIL-GRANODINE"
	Pickling with Inhibited Acids	"RODINE"
	Rust Prevention for Unpainted Iron	"PEROLINE"
	Rust Proofing	"PERMADINE" "THERMOIL-GRANODINE"
	Rust Removal—Brush, Dip, or Spray	"DEOXIDINE"
	Soldering Flux	"FLOSOL"

Visit Our Display in
Space 1104
Main Exhibition Hall
Cleveland
Public Auditorium
at the
National Metal Exposition
October 19th - 23rd

CHEMICALS
ACP
PROCESSES

AMERICAN CHEMICAL PAINT COMPANY

GENERAL OFFICES: AMBLER, PENNSYLVANIA

Detroit, Michigan Niles, California Windsor, Ontario

Practical Applications of modern products

How to Clean Zinc Base Die Castings Before Plating

By A. T. THIBADEAU
Oakite Products, Inc.

A CHICAGO plating shop was spending over $20,000 a year to rework rejected parts for table and floor lamps —all because their electrocleaning process was faulty. They switched to Oakite Composition No. 95, ran a large number of parts through the new solution, plated them, and found that the blistering that had formerly plagued them had come to an end.

To say that this experience is typical of all plating shops would not be altogether true. Indeed it is difficult to find *any* typical plating shop. But this case is illustrative of the importance of any given step in the plating cycle. The shop can go wrong in the precleaning, in the amperage of the cleaning or plating solution, in the temperatures used—almost anywhere along the way. On the other hand, it is almost impossible to design a plating process that could be adhered to rigidly by all platers. There is a wide variety in the metals they are working, the operations preceding the plating process, the working conditions of temperature, time, equipment, and other factors.

It is possible, however, to put down some principles that have evolved concerning the always ticklish job of electrocleaning zinc base die castings. The job is complicated, first of all, by the character of the metal itself—its high chemical activity eliminates all but a few cleaning materials; buffed die cast pieces react more rapidly with cleaning solutions than unbuffed pieces; the parts, after plating, suffer from physical and chemical changes between the plate and the basis metal, brought about by aging or excessive baking in the enameling process. While cleaning is designed to remove all soils from the surface, the cleaning solution not infrequently brings about a chemical change in the basis metal, such as oxidation, that is itself undesirable. The cleaning material sometimes etches the surface excessively, and thus interferes with the plating process. And unfortunately some of the changes do not manifest themselves until the plated surface blisters or peels prematurely.

Many experiments have been made on the cleaning of zinc base die castings. Solvent degreasing, alkalis (used in both cathodic and anodic cleaning), and acids in varying strengths have all been tried. These experiments have established that degreasing in a chlorinated solvent (such as trichlorethylene) or emulsifiable solvents or a soap-type soak is essential to remove the bulk of the soil — grease, buffing compound, dirt—so that the subsequent cleaning may be handled in a short time by a mildly alkaline solution. The degreasing solution must be watched carefully —if the trichlorethylene should be on the acid side, or if there is too much moisture in the solution, it may produce white spots that would show up on the plated finish. Sometimes the

degreaser leaves a film on the surface—the hand wiping then required does not always do a uniform job, and the hand can not always get into the recesses of the castings, which may be loaded with dried or partially baked-on buffing compound.

The baskets in which parts are placed for immersion in the degreasing solution should be fitted with spacers to take full advantage of mechanical agitation, and to insure proper drainage.

Tests have shown that strong alkaline cleaning solutions and acid pickling, when used for aluminum bearing zinc castings, cause an excessive amount of hydrogen adsorption into the pores. This will lead to a subsequent blistering of the plated surface. They also produce a surface layer richer in aluminum than the substrata of the casting, and aluminum is much more difficult to plate than zinc.

Other experiments conducted in cathodic and anodic cleaning tanks have proved that anodic cleaning is the better method. Castings cleaned cathodically quickly develop an irregular, thick coat of sodium zincate which causes excessive activity in the subsequent acid dip. The surfaces of anodically cleaned parts, on the other hand, are coated with a thin, uniform, anodic film, and are consequently somewhat passive. A very mild acid solution quickly reactivates them, and makes them receptive to the copper plate.

The etching produced by anodic cleaners does not lessen the brightness of the plated finish. Anodic cleaners, if used continuously, are not subject to contamination from dissolved zinc, and are capable of sustaining a higher concentration of chromium salt contamination than are cathodic cleaners.

The principal purpose of the acid dip is to neutralize whatever alkali may cling to the surface, and remove the last remaining traces of alkali. Consequently a very mild acid solution—¼ to 1 per cent of sulfuric or hydrochloric—will do the job as well as reactivate the surface.

The acid dip should be followed by a thorough rinse, then a copper strike, which helps lessen the danger of subsequent blistering. Pieces are then immersed in the regular copper plating bath. If an acid bath follows, the parts should first be rinsed and neutralized before going into the acid solution.

Several proprietary materials are now commercially available which have been designed expressly for anodic cleaning of die castings. The representatives of leading manufacturers of industrial cleaning materials will be able to suggest their best applications to fit the shop's individual needs.

The following procedure has been used with a great deal of success by a large Illinois electroplating concern. The parts are first immersed in the vapor degreaser for 2 to 5 minutes, at 205 to 210 deg. F., then transferred to the loading station for the automatic plating setup. They are immersed in a mild, inhibited alkaline solution, temperature 140 deg. F., for 3½ minutes to remove the film left by the vapor

degreaser and to reduce whatever chromates may be in defective racks. They are then given a running warm water rinse, and as they emerge from the rinse tank, they are sprayed with cold water.

Anodic cleaning follows, in a 4 ounce to the gallon solution of Oakite Composition No. 95, at 160 deg. F., 6 volts, current from 20 to 40 amp./sq. ft., for 22 seconds. This is followed by a rinse, a dip in ¼ of 1 per cent sulfuric acid solution, another rinse, and then the copper strike. Concentration of the anodic cleaning solution should be watched carefully as this solution will etch the pieces if the strength drops below 2½ ounces to the gallon. Current should not be applied until all the work pieces have been submerged in the solution, and should be shut off before the parts are withdrawn. This permits an even distribution of current on all parts.

The anodic cleaner used in these operations will leave a grayish film on the surface of the pieces, but this is quickly removed in the acid dip which follows the cleaning. It does not blacken castings—original luster is maintained.

This material has a long service life because of its great tolerance for contaminants such as chromic acid. Actual length of solution life will depend upon the amount of work processed. Volume production may call for dumping every twenty-four hours; on the other hand, more moderate production may permit solution use for a week or more.

This proprietary material minimizes blistering of the plate after heating; experience has shown no blistering after baking for 1 hour at temperatures around 300 deg. F. It gives better plate adhesion and a higher degree of luster.

A note of caution: Castings should be plated immediately after buffing, to avoid the hard setting of buffing compound, and the oxidation and contact with acid or alkaline fumes that invariably accompany aging. The shop schedule should be so arranged.

Airless Spray Painting

By JAMES A. BEDE
President, Bede Products, Inc.

AIRLESS Spray Painting is a painting and finishing process whereby paint is sprayed by hydraulic pressure, combined with heat—without any air whatsoever.

Two basic inventions were required to make possible Airless Spray Painting. First was the working out of the process. Hydraulic spraying of paints

to page 74→

Yes: WE'D LIKE TO GET A COPY OF THE BIG NEW M & E SPRAY FINISHING EQUIPMENT GUIDEBOOK

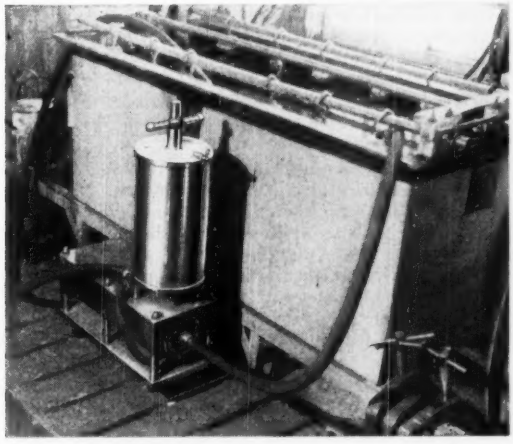
SPRAY BOOTHS - Systems

Name
Title Street
Company City State

M & E
MANUFACTURING COMPANY
PAINT SPRAY FINISHING SYSTEMS
INDIANAPOLIS 5, INDIANA

Here's how to cut your losses

get better finished plated work — save time and labor



The *"Sealed-Disc"* Filter will remove all dirt, dust, and sludge from your plating solutions. You will no longer worry about pitting, spotting, poor adhesion, formation of nodules, etc.

More and more platers testify to the remarkable savings in operating time and labor that the *"Sealed-Disc"* Filter gives them. These cost-minded platers get better finished plated work and have found that their solutions last l o n g e r. *"Sealed-Disc"* Filters, designed to meet plating room requirements, are smaller, more compact and portable, than ordinary conventional filters.

Regardless of the size or type of your installation, there's a *"Sealed-Disc"* Filter to "fit your job". You can depend on a *"Sealed-Disc"* Filter for positive, trouble-free performance that's proof against even the invisible impurities that cause nodules and porousness, proof against losses caused by rejects and reworking. Write for complete details or contact your regular plating supplier.

ALSOP

ENGINEERING CORPORATION

Filters · Filter Discs & Sheets · Mixers · Agitators

809 Keen Street Milldale, Connecticut

OTHER ALSOP PLATING ROOM EQUIPMENT

We manufacture a full line of Mixers and Agitators covering a complete range of sizes, for mixing, blending, and dissolving. Stainless Steel Mixing Tanks are also available in a wide range of capacities. For full details and illustrations write for your free catalog.

three words name it...
three thousand can't describe it

A giant of production tools, this masterpiece of machine design works daily wonders of metal finishing throughout industry. Numerous immersions of each loaded rack are timed to the split second through the many operations required for consistently uniform electroplating, anodizing, pickling, cleaning, coating, dipping and etching. All are handled effectively...automatically...by the H-VW-M Full Automatic Conveyor.

From rocket-engine complexity to shell casing simplicity, difficult finishing problems shrink from "mountains" to "molehills" when H-VW-M's broad experience is applied. That's why so many defense components are moving surely, continuously, automatically, through one finishing phase after another in H-VW-M custom-engineered conveyors. Yet these same units, through H-VW-M's engineering for functional flexibility will convert to consumer production with the minimum of down time.

And essential to all production is practically every item on this H-VW-M list. The proper power through generators or rectifiers; the coatings from anodes, chemicals, bright dips and processes; and the finish from wheels, buffs and compositions—each designed for its specific function by men familiar with every detail of all the phases of finishing.
It is for these reasons that American industry habitually turns to H-VW-M as the *one complete, dependable source* of assistance, processes, equipment and supplies for all their requirements of inorganic metal finishing...in a word *Platemanship*.

Abrasives
Acid Pump
Ammeters
Analyses, Solutions
Anodes
Anode Containers, Ball
Aprons, Platers
Balancing Tools (Ways)
Ball, Steel Eclipse
Barrels, Burnishing
Barrels, Tumbling
Barrels, Plating
Basket, Scrap Anode
Baskets, Dipping
Brighteners, Addition Agents
Brushes
Buffs
Burnishing Shot
Carboy Rockers, Steel
Cathode Rockers
Chemicals, Plating
Chrome Spray Floats
Cleaners
Compositions
Cooling Coils
Crocks, Earthenware
Degreasing Apparatus
Degreasing Solvents
Dryers
Exhaust Fans
Felt
Filters
Fluxes
Generators
Gloves, Platers
Glue, Belgrade
Heaters
Hose
Insulating Steam Joints
Klinch Grain Cement & Thinner

AND WHAT IS PLATEMANSHIP?

It is H-VW-M's unique combination of: the most modern and complete laboratory for testing and development ... the ability to provide complete equipment and supplies for every plating and polishing need ... the complete background of knowledge and experience in every aspect of plating, polishing, cleaning and anodizing.

HANSON-VAN WINKLE-MUNNING COMPANY, MATAWAN, NEW JERSEY
PLANTS AT MATAWAN, N. J. • ANDERSON, INDIANA

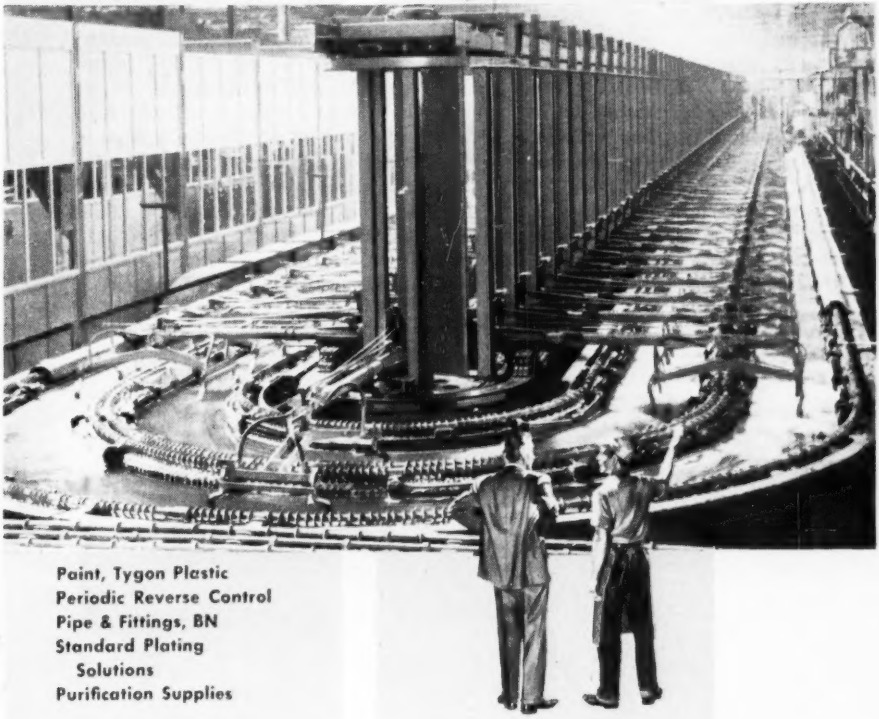
SALES OFFICES: ANDERSON • BALTIMORE • BOSTON • CHICAGO • CLEVELAND DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • LOUISVILLE • MATAWAN MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH • ROCHESTER SPRINGFIELD (MASS.) • STRATFORD (CONN.) • UTICA • WALLINGFORD (CONN.)

H-VW-M

INDUSTRY'S WORKSHOP FOR THE FI

Kote-Masq
Kote-Rax, Grade L
Lathes
Leather, Polishing
Conveyors,
Full-Automatic
Semi-Automatic
Lime
Metal Polish
Moisture Extractor
Equipment
Oxidizing Liquid
Pails, Rubber

Rectifiers
Salt Fog Corrosion
Testing Equip.
Sisalin Sections
Sisalweev Sections
Tanks
Tank Rheostats
Temperature Controllers
Voltmeters
Wheels
Wheel Cleaners,
Polishing
Wrap-rax



Paint, Tygon Plastic
Periodic Reverse Control
Pipe & Fittings, BN
Standard Plating
Solutions
Purification Supplies

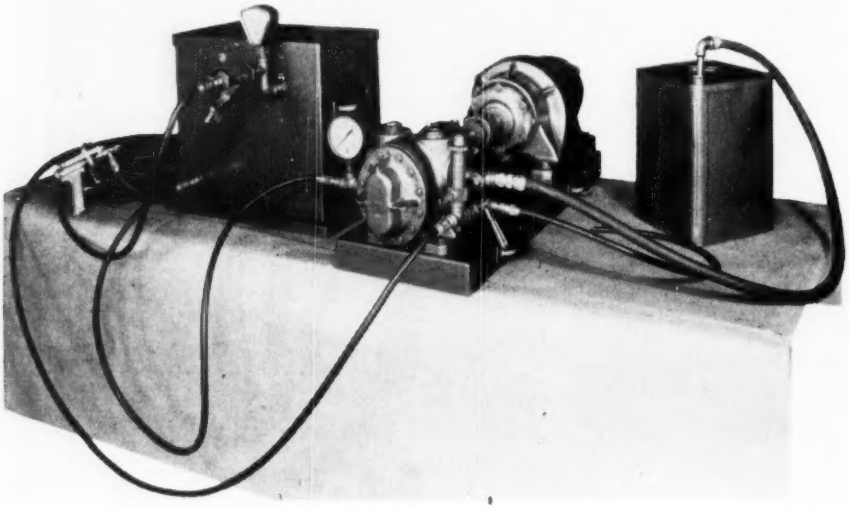
6920

has been tried for many years by many people. They failed because spraying a heavy bodied paint was impossible. To make possible spraying with straight hydraulic pressure the material had to be thinned out so excessively (down to 5 to 10 per cent solids), that the idea was impractical. The answer to the obstacle was to heat the paint to lower its viscosity to a watery consistency by heat instead of solvents. Heat also builds up a vapor pressure which assists in atomization.

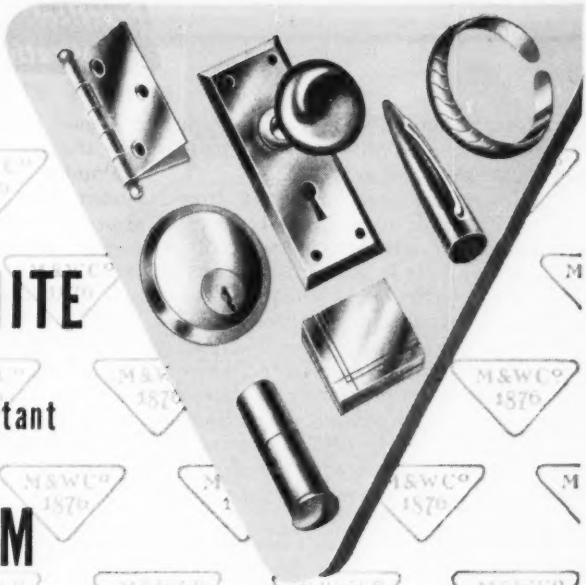
The second invention was the development of a suitable paint heater, one that would be safe and could handle the relatively high pressures. The Bede Paint Heater (Model U) was designed with this requirement as its goal.

With regular spraying an external force, compressed air, converges on a stream of paint coming out of the fluid tip of the gun. With Airless Spray Painting atomization is accomplished because internal forces of expansion are suddenly released. To accomplish atomization, two forces are harnessed. One is the mechanical force of a liquid released through a proper restrictive nozzle (as water is broken up by a garden hose).

The second force is vapor pressure. The finish is heated to such a high temperature (180 to 200 deg. F., for synthetics; 160 deg. F. for lacquers) that a fraction of the solvent content is brought close to the boiling point. Lacquers generally attain a vapor pressure of 5 to 7 p.s.i., synthetics 8 to 12 p.s.i. above atmospheric pressure. However, because the circuit is under pressure (from 300 to 600 p.s.i.) the solvents do not actually boil. Upon release to atmosphere, these solvents will burst into gas thus effecting an additional breakup of the paint particles.



Airless Spray Painting Equipment



It's practically

WATER-WHITE

a NEW
chemically resistant
baking finish—

DURACHEM

For all types of metal products from heavy hardware to fine jewelry

Here is a new baking type synthetic finish for metal parts that combines unusual clarity with a high degree of chemical resistance.

Product of Maas & Waldstein Co. research, DURACHEM is almost water-white in color—and retains its clarity even after prolonged exposure to heat and sunlight. It also protects metal parts against the effects of salt spray and perspiration.

Typical applications include builders' hardware, vanity and cosmetic cases, lipstick shells and pen caps.

Where decorative color effects are desired on metal, DURACHEM can be supplied in a range of colors with the same chemical stability as the clear finish.

Samples and technical literature are available on request. Or an M & W technical consultant will discuss your requirements privately with you.

PIONEERS OUR 78th YEAR M&WCo 1876 IN PROTECTION

MAAS & WALDSTEIN CO. 2122 McCARTER HIGHWAY NEWARK 4, NEW JERSEY

Midwest Div.: 1658 Carroll Ave., Chicago 12, Ill.
Pacific Coast Div.: Smith-Davis Co., 10751 Venice Blvd., Los Angeles 34, Calif.

MANUFACTURERS OF INDUSTRIAL FINISHES

In effect, therefore, what we are doing is using the solvent within the paint as an atomizing agent.

With regular spray painting from 500 to 700 cubic inches of air are required to properly atomize one cubic inch of paint. It is interesting to note that in converting a solvent into a gas the rate of expansion is approximately 1500 to 1. The internal force of expansion is more effective in achieving breakup of paint into particles, so that a relatively small amount of the liquid converted into a gas will be very beneficial. This combined with the straight hydraulic force achieves very fine atomization.

Airless Spray Painting Equipment

Equipment used in the Bede Airless Spray Painting System is especially designed for this operation. Here is how the system works:

Paint is siphoned by a pump into the system, sent through the heater to the spray gun and the unused portion returned (pressure feed can be used but is not necessary). Circulation is necessary to maintain hot paint at the gun nozzle at all times. Pressure in the circuit is maintained, (generally between 300 to 600 p.s.i.) by a pressure relief valve on the return side of the circuit.

The spray gun is nothing more than a trigger. It is lighter than the conventional gun. Spray performance, the volume and angle of spray, is controlled not by a gun adjustment but by the selection of the nozzle. Thus, that all important factor of balancing atomization by spray gun control is taken out

PLATING POWER RECTIFIERS

that eliminate costly maintenance!

Sel-Rex

Completely Sealed SELENIUM RECTIFIERS

NEMA

Air-tight, sealed cabinets stop corrosion.

Cooled by air-to-water heat exchanger. Air recirculated within the cabinet.

Reactronically Controlled — moving parts completely eliminated.

No dust can enter cabinet . . . stack never needs cleaning.

Top efficiency 24 hours a day.

Sel-Rex Rectifiers are Unconditionally Guaranteed for 2 years. Models from 5 to 50,000 amps.

Write Dept. PF 9

BART-MESSING CORPORATION
229 Main Street
Belleville 9, N. J.

The right Behr-Manning Abrasive Belt

HAVE YOU READ THESE POLISHING BULLETINS?

"HOW POLISHER PETE PUT ECONOMY IN POLISHING" contains up-to-the-minute data on belt selection, etc.

"BLUEPRINTS FOR BETTER, FASTER PRODUCTION" contains case histories of contour polishing and other "tough" abrasive finishing jobs. Write for both copies today. Address Behr-Manning Corp., Troy, N. Y., Dept. PF-9.

with a contact wheel that's right for the job — often specially formed and resilient — makes a world of difference in contour polishing output and costs. It produces a smoother, cleaner polished surface without wild grain marks and without the fuss and bother of frequent wheel changes or rework. It's the modern streamlined way that helps operators produce more with less fatigue. Check into Abrasive Belt Contour Polishing. Call in your local BEHR-MANNING® Field Engineer today.

In Canada: Behr-Manning (Canada) Ltd., Brantford.
For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N.Y., U.S.A.

BEHR-MANNING® CORPORATION
division of NORTON Company

▲ COATED ABRASIVES
▲ SHARPENING STONES
▲ PRESSURE-SENSITIVE TAPES

of the hands of the individual operator and established as a fixed uniform procedure.

The pump is driven by an explosion proof electric motor, generally a ¾ h.p. motor. The paint heater is a 4 KW heater. Both the heater and the pump are approved by Underwriters' for hazardous location use.

The fluid hose is a special hose designed to stand high pressures (bursting test of 3000 p.s.i. or better) and is also designed to stand the hot solvents. It is lighter and more flexible than the conventional fluid hose.

The biggest single advantage in Airless Spray Painting is reduction in paint loss due to overspray. With the correct use of Airless Spray equipment this paint loss is reduced considerably.

A heavier film thickness can be achieved in one operation. This is due to the fact that we not only can spray a heavier, higher solid content mixture but also in the spraying operation we dissipate a greater percentage of solvent from the atomized particles. This is very beneficial provided the remaining solvents properly carry the burden of flow-out. Furthermore, in many cases the heated paint particles result in a better flow-out with a higher gloss and a generally better quality finish.

This process has now been officially announced to the trade and the general reaction is that it is an important development. Paint manufacturers have been constantly improving the quality of their products. The use of Airless Spray Painting will make possible still greater improvements in formulation and utilization of finishing materials.

Caustic Soda Cleans Dimpling Dies in Aircraft Plant

SIMPLE die cleaning has been shortened from an eight-hour-a-week undertaking to an easy 10-minute job at TEMCO Aircraft Corporation, Dallas, Texas.

Abrasives had been used by TEMCO employees to grind aluminum burrs, burned grease and paint off of chromed die faces. Some of this foreign matter

to page 82→

Doesn't YOUR product deserve a MOCO surface?

MOCO BUFFING COMPOUNDS

The "Long Mileage" line for all finishing requirements

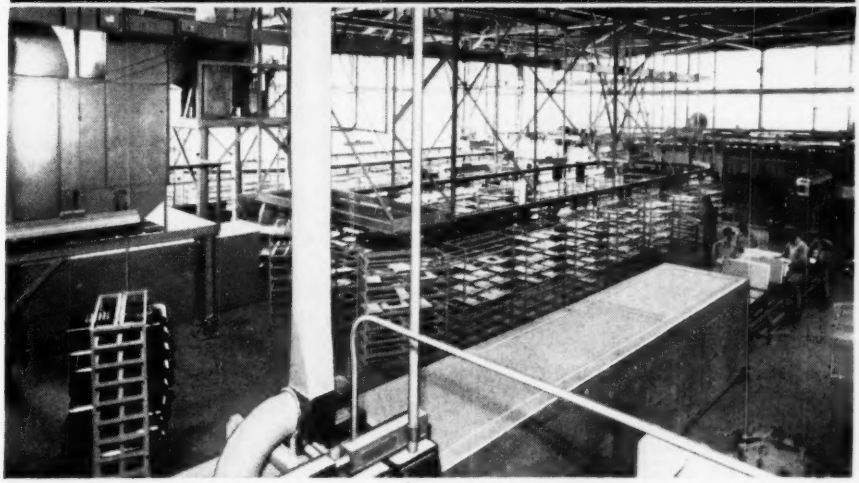
MOCO TUMBLING BARREL COMPOUNDS

To keep pace with modern barrel finishing techniques

WE INVITE YOUR INQUIRIES

THE MOSHER COMPANY · 15 Exchange St., Chicopee, Mass.

FROM LAYOUT THROUGH INSTALLATION...



MAKE KOCH RESPONSIBLE FOR YOUR COMPLETE METAL FINISHING SYSTEM

KOCH BUILDS:

- BAKING OVENS
- SPRAY BOOTHS
- METAL WASHING EQUIPMENT
- COMPLETE FINISHING SYSTEMS FOR BOTH WOOD AND METAL
- AIR MAKEUP SYSTEMS

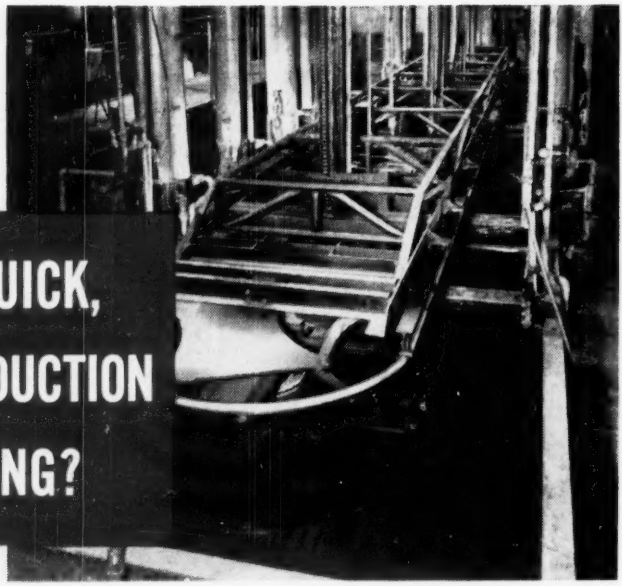
When KOCH handles your entire job, all components of your system perfectly dove-tail. No delays. No costly last-minute changes.

KOCH engineering, reflecting over 80 years of metalworking experience, assures you of the most efficient finishing system your money can make possible — a system that will pay you handsome dividends from the day it's installed.

Learn all the details NOW from a qualified KOCH engineer. Calling him in may be the most profitable move you make this year.

▶ WRITE FOR CIRCULAR 12

GEORGE KOCH SONS, INC.
EVANSVILLE, INDIANA



NEED QUICK, HIGH PRODUCTION CLEANING?

METAL MOULDINGS CORPORATION OF DETROIT DOES IT AUTOMATICALLY

with UDYLITE EQUIPMENT!

"We had to have a FAST . . . yet SURE . . . method of cleaning our automotive stampings before plating. And these stampings are *really* intricate shapes. That's why we chose AUTOMATIC cleaning using a Udylite Full Automatic."

Yes, that's what the people of Metal Mouldings Corporation, Detroit, Michigan, told Udylite. They must combine a large volume of cleaning with no rejects. They found that Udylite equipment assured them of high production...while it saved time and manpower.

If you have cleaning problems . . . let the Udylite Corporation provide the answer. Your Udylite Technical Man will show you a faster, more economical, AUTOMATIC way to clean metal parts. Call him today or write direct for all the facts.

THE UDYLITE CORPORATION, DETROIT 11, MICHIGAN. *West of Rockies, L. H. Butcher Co., Los Angeles 23, California*

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

PIONEER OF A BETTER WAY IN PLATING

METEX CHROMEFOME

ZINCTEX DYCLENE "E"

ROCHELTEX ALUMETEX

ANODEX TROXIDE

Udylite BLACKMAX SOLVMAX "X"

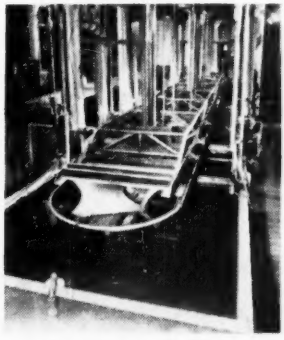
CHROMETEX ALUM-I-NIEL

CLEANING SUPPLIES WORK *FASTER, BETTER, MORE ECONOMICALLY!*

Whether used with Full Automatic Cleaning Equipment, still tanks or barrels, Udylite-MacDermid cleaners are best! Udylite has the answer to *your* metal cleaning problems:

Steel Base—Electrolytic, soak, spray or general purpose compounds. Especially adapted for cleaning steel base materials either with direct or reverse current.

Typical Full Automatic Cleaning Installation at Metal Mouldings Corp., Detroit, Michigan



Brass and Die Castings—Electrolytic, soak, spray and burnishing compounds are ideal for brass, zinc, and aluminum diecastings.

Specialties—For all special metal cleaning problems.

Call your Udylite Technical Man for the complete story or write direct. The Udylite Corporation, Detroit 11, Michigan. *West of Rockies, L. H. Butcher Company, Los Angeles, California.*

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

melts in the 600-degree heat associated with dimpling operations, and the melted and burred matter cakes particularly around the base of the die cone. This ruins die configuration and causes marred or mis-shaped dimples.

Grinding cleaned off the melted matter satisfactorily, but required a man-hour a day on the average. Abrasives often damage die configuration more than the melted matter.

Abrasive stones didn't fit the tiny contours of die faces. Dies came out of chucks after grinding with dished-out cones and lop sided spring-back angles. An estimated one-fifth of dimple dies were discarded because of abrasive wear and tear.

Then D. R. Gates, hot dimpler in TEMCO's A2D center wing department, developed a system for washing dies clean.

The cleaning solution contains caustic soda and water at a cup-to-the-gallon ratio. The mixture is heated to 200 deg. F. in a glass or steel container. Dirty dies are soaked in the hot solution for 2 to 10 minutes.

Dies should next be rinsed in water and dried with a cloth.

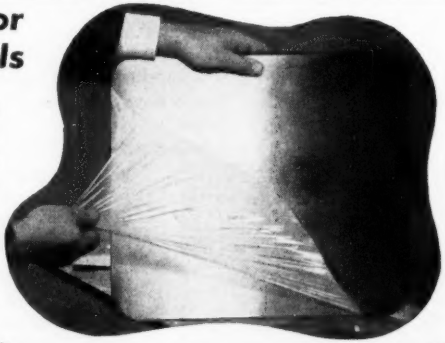
The inexpensive solution won't damage chrome, iron or steel, the metals of which dies are made. Dirty dies in fact, may be soaked in the solution overnight, or indefinitely.

Magnesium is the only other metal Mr. Gates has found that is impervious to the eating action of caustic soda.

Mr. Gates uses an iron or steel basket to dip dies in the caustic solution.

A Strippable Plastic for the Protection of Metals

Striplastic is a protective plastic applied by spraying, dipping or rolling. It is used on stainless steels, high polished metal sheets, sheets in cold working or drawing, tools, dies and parts, and on sheets or metal parts before packaging. It protects against scratching and abrasion, and against rust. Also available as a booth coat protection.



THE STRIPLASTIC COMPANY
10828 QUEBEC AVE.
CLEVELAND 6, OHIO

Among many advantages, it is non-toxic, possesses great tensile strength and is easily stripped off in one piece. Write for complete information on this new strippable plastic.

28 Years of Experience In Sale and Service of

CHEMICALS TO CLEAN and PREPARE METAL for PAINTING

Surphos — CLEANER and PRODUCER OF PHOSPHATE COATINGS.

Sol-Klean — PHOSPHORIC ACID RUST REMOVER AND ETCHER.

Industro — ALKALI CLEANERS, STRIPPERS and AIR WASH COMPOUNDS.

Industrosolv — SOLVENT EMULSIONS FOR SPRAY WASHING MACHINES.

SOL-KLEAN prepares steel and aluminum for painting, removing rust, oxide and oil. It etches the metal and gives a thin phosphate coating. One volume of Sol-Klean, diluted with 3 volumes of water, usually brushed on the metal at room temperature. It penetrates oil and dissolves rust. Sol-Klean is removed together with the dissolved oil and rust by wiping with rags or flushing with water. Metal may also be cleaned and treated by immersion in hot Sol-Klean and rinsing in water. Sol-Klean is non-inflammable and evolves no toxic or corrosive fumes.

SURPHOS cleans and produces a phosphate coating on sheet steel, machined and cast iron. It anchors the paint finish and increases its humidity and salt spray resistance. Use hot (one ounce per gallon solution) in Power Wetting Machine or dip tank. Acid proof equipment not needed.

NOTE:

Consult Us On Your Government Specification Requirements

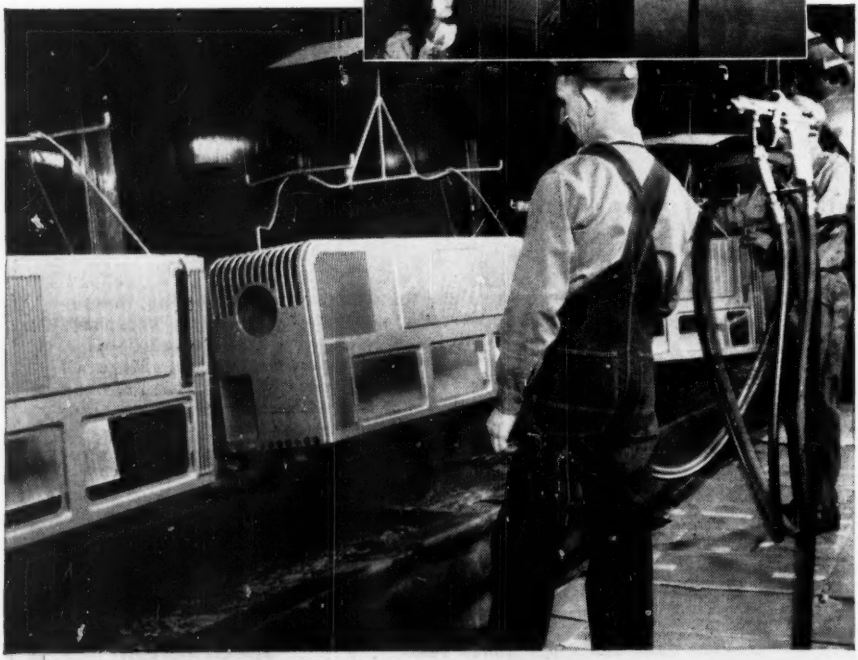
INDUSTRIAL CHEMICAL PRODUCTS COMPANY

3778 BELLVUE AVENUE — **DETROIT 7, MICHIGAN**

Representatives In Principal Cities

IN CANADA, MADE AND SOLD BY BOYLE CHEMICALS LTD. LONGBRANCH, ONT

Coleman Heating Unit, finished in Pittsburgh Polychromatic Tan Baked Enamel, harmonizes with almost any interior decorating arrangement.



Coleman Model 492 Trailer heater casings being sprayed with Pittsburgh Polychromatic Tan, immediately following the bonderizing process.

PITTSBURGH

PAINTS • GLASS • CHEMICALS • BRUSHES

PITTSBURGH PLATE

Leading Manufacturers
Of Heating And Air Conditioning Equipment Rely Upon
Pittsburgh Finishes

Typical of the way in which Pittsburgh research and technical staffs work with an industry to provide special coatings of unusual quality and performance for its products, are the Pittsburgh Finishes developed for many prominent manufacturers of heating and air conditioning equipment.

The Coleman Company, Inc. of Wichita, Kansas, manufactures heaters for trailers. It uses Pittsburgh Polychromatic Tan Baked Enamel on the casings of these heaters.

This is a very attractive finish with eggshell sheen which adds to the appearance of the unit. Being neutral, the color blends well with almost any interior color scheme. The coating has excellent adhesion and provides unusual mar resistance at the same time that it fulfills the moderate heat resistance which is required.

Interiors of these trailer heating units are finished with high heat-resisting Pittsburgh aluminum finish.

PITTSBURGH PLATE GLASS CO., Industrial Paint Div., Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Springdale, Pa.; Atlanta, Ga.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Div., Detroit, Mich. The Thresher Paint & Varnish Co., Dayton, Ohio. Forbes Finishes Division, Cleveland, Ohio. M. B. Suydam Division, Pittsburgh, Pa.

FREE ADVISORY SERVICE

Pittsburgh's broad experience in serving many fields may be helpful in solving your finishing problems. Write, wire or phone the Pittsburgh Paint plant nearest you. We'll be glad to have one of our engineers discuss your requirements with you, without cost or obligation. Such a call may save you time and money.

PAINTS
• PLASTICS • FIBER GLASS
GLASS COMPANY

Removing of Zinc From Deburring Stones

THE Magnus Chemical Company, of Garwood, N. J., has perfected a simple method of removing the metallic zinc coating which deposits on deburring stones when zinc die castings are barrel-deburred. The experience of a mid-western barrel finishing shop is typical.

Here the deburring medium is a synthetic white stone. It took nearly an hour and a half of tumbling with caustic soda to remove the zinc deposit.

Now with Magnus D-Scale-R the chips are completely cleaned in 20 minutes. Several hundred pounds of the contaminated chips are placed in the barrel with enough water to come to the top of the load. Two to three pounds of Magnus D-Scale-R are added, and the barrel is run for 15 minutes. After thorough rinsing with water in the barrel, about 2 pounds of a Magnus alkaline cleaner are added, and the load tumbled for 5 minutes to neutralize any remaining traces of D-Scale-R.

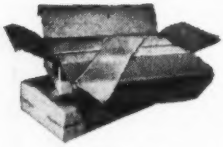
D-Scale-R is a solid, inert material which does not produce acid action until dissolved in water. It is inhibited against harmful acid action.

Steel Carpenter Squares Polished on Two Sides At the Same Time

TWO coated abrasive belts, running over vertically opposed contact wheels, doubled the production finish-

For Dust Free Finishes!
BOND TACK CLOTH

IN ROLLS
Cut off any size piece to use as needed.



IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME
Now Available in Rolls or Cut Bulk—White or Gold
In Three Different Types of Cloth

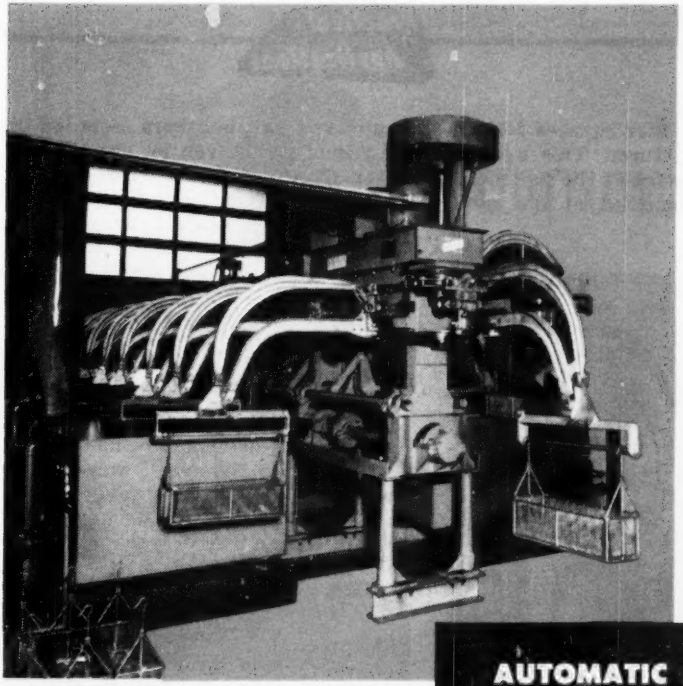
Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.
No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!
The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

BOND CHEMICAL PRODUCTS CO.
"The Tacky Wiper Specialists"
2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON



Stevens full Automatic at National Cored Forgings Company

AUTOMATIC BRIGHT DIP AT NATIONAL CORED FORGINGS CO.

GIVES HIGH PRODUCTION
—UNIFORM RESULTS
—IN LESS SPACE!

Yes, that's the report of National Cored Forgings Company of South Norwalk, Conn. More work . . . better results . . . with less space . . . thanks to Stevens equipment!

This Company produces items ranging from lens caps to padlock cylinders. In each case, bright dipping is a necessary step to a bright finish. That's where Stevens pays off.

Automatic bright dip assures uniform results PLUS high production. Frederic B. Stevens supplied the answer to National Cored Forgings Co. high production bright dip problem.

Let Frederic B. Stevens help solve your plating problems. Call or write direct. Frederic B. Stevens, Inc., Detroit 16, Michigan.

FREDERIC B.
STEVENS
INCORPORATED
EVERYTHING FOR METAL FINISHING
DETROIT 16, MICHIGAN

BRANCHES: DETROIT • BUFFALO • CLEVELAND • NEW HAVEN • INDIANAPOLIS
IN CANADA: FREDERIC B. STEVENS OF CANADA, LTD., TORONTO • WINDSOR

ing rate of carpenter squares for one midwest manufacturer. This setup permitted both sides of the flat metal product to be polished at the same time.

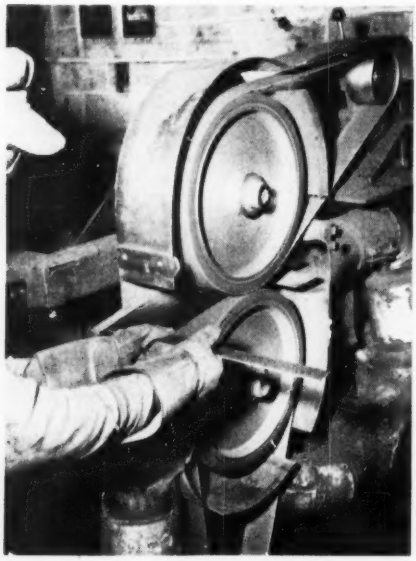


Fig. 1—Both sides of a flat metal part being polished in one operation. Square is passed through fixed gap between two coated abrasive belts.

Previously, the squares were offhand polished on abrasive coated setup wheels. The original objective in converting from setup wheels to coated abrasive belts was to take advantage of the better finish produced and the reduced cost in operation possible with belts. The double belt machine was a subsequent development.

The machine, as set up by the product engineers of Behr-Manning Corporation, Troy, N. Y., manufacturer of coated abrasives, consists of two coated abrasive belt polishers mounted in one frame and driven by one electric motor. The bottom belt runs vertically and the top belt runs horizontally. Rubber rimmed contact wheels support the belts where they contact the work and act as belt drive wheels. Two backstand idler pulleys, one in the frame base and one on the rear frame, maintain belt tension.

Center distance between the two contact wheels is fixed to maintain a gap between opposed abrasive belts equal to the final desired thickness of the carpenter square. However, the frame is adjustable to permit changes in center distance for polishing thicker or thinner stock.

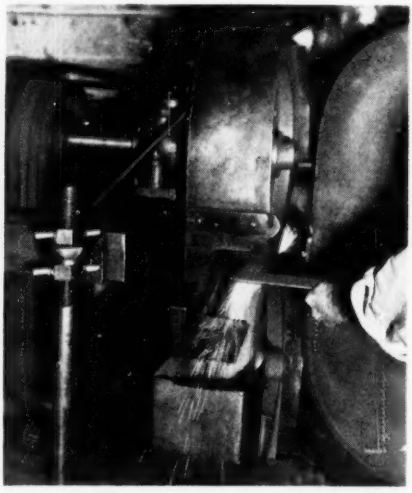


Fig. 2—Two threaded rods (in foreground) are the means for adjusting the center distance between contact wheels. By turning the nuts on the rods, the gap between belts can be changed to suit thickness of finished work. Notice the triple V-belt drive that turns both contact wheel shafts in the same direction.
(Photos courtesy Behr-Manning Corp., Troy, N. Y.)

Harmonious

Lines alone may sell a product — but *covering* is important, too! And when these two elements are blended — just so — the resulting harmony sings the sweet music of dollars earned and selling future assured . . . Because the selection of a product finish is so important, it pays to consult specialists for advice. Rockford Varnish Company technicians can help you by recommending the proper stock coating, or by developing a custom-coating for *your* product requirements alone. They'll work with you to harmonize the perfect finish with the features of the products you offer . . .

Research, Quality, Service

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Affiliate
GORDON BARTELS CO.
Roller Coating Specialists

Since the same four V-belts from the motor drive both contact wheels, both contact wheels run counterclockwise (as viewed from right side) at the same speed. With wheels of equal diameter the surface speeds of the belts are equal. But at contact points, the belts are moving in opposite directions. This balances the thrust or pull on the square being polished and permits the operator to retain full control of the work.

CHEM-BOND. "EIGHT REASONS WHY CHEM-BOND IS A SUPERIOR PAINT BASE," is the title of a folder distributed by **Bell-Ray Chemical Corp.**, 524 W. Madison St., Milwaukee 3, Wisconsin. In addition to the eight reasons, directions for hand application and production use of the product are included.

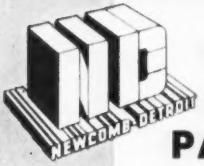
For manufacturers of resins for industrial paints and coatings, the Industrial Chemicals Department, **Atlas Powder Company**, Wilmington 99, Del., has published a 20-page booklet suggesting proper uses and formulations for commercial type, oil-modified alkyds and rosin esters produced with sorbitol, a polyhydric alcohol.

Titled **"SORBITOL RESINS,"** the booklet presents in tabular form the solids composition, solution composition and properties, air drying data, color retention values, degrees of compatibility, and film properties for six typical alkyd resins compounded with sorbitol; and solid resin and solution properties, solubility and compatibility for six rosin esters.

For each of the 12 resins, succeeding pages show typical uses, describe the resin, suggest procedure and list physical constants, formulas, typical logs and air drying data. Concluding pages list 46 groups of industrial products, with the recommended resin number for each.

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF



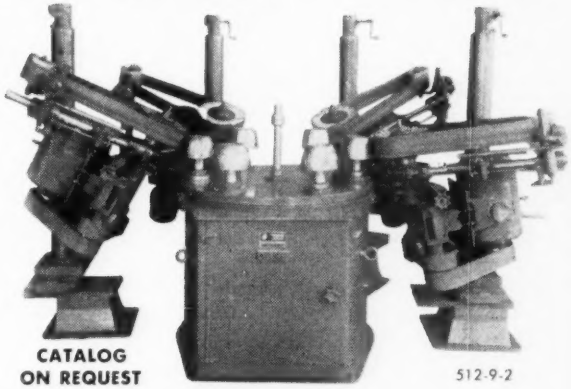
INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
AIR SYSTEMS

ESTABLISHED 1912
DETROIT DIVISION – GRAND RAPIDS DIVISION –
NEWCOMB INDUSTRIES LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
NEWCOMB-DETROIT
5761 Russell St.,
Detroit 11, Mich.
TR 3-2100

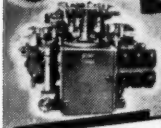
ACME *Automatic* POLISHING and BUFFING MACHINES *are dependable in production!*

This ACME Automatic 40" Rotary shown has a six-station indexing table arranged with four ACME type G-1 adjustable floating head buffing lathes equipped with polishing belt arm attachment. ACME Automatic Rotaries are available in indexing table sizes from 18" to 10' diameter and up to 24 ft. with continuous tables.



CATALOG ON REQUEST

512-9-2



ACME *Automatics!* PROVIDE EFFECTIVE SOLUTIONS TO PROBLEMS OF *POLISHING* • *BUFFING* • *GRIDING* • *DE-BURRING* • *WIRE BRUSHING* • *MICRO-FINISHING* •

For nearly 50 years ACME has successfully solved many difficult production finishing problems. This varied experience and specialized engineering is your strong assurance of performance that will cut high man-hour costs with efficient high production machine-hours.

For recommendations, send blue prints of part or samples before and after finishing, with detailed information on finishing operations and production requirements. If production methods will cut your costs, we can set your job up in our experimental department and you can inspect it in operation.

ROTARY STRAIGHT LINE SEMI-AUTOMATIC AND SPECIAL *Polishing and Buffing Machinery*

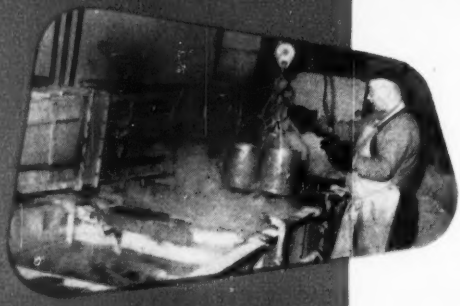
SPECIAL MACHINERY AUTOMATIC BUFFING MACHINES

ACME *Manufacturing Co.*

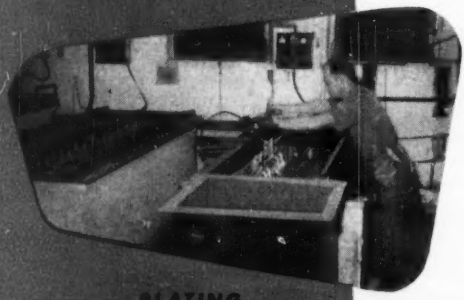
Builders OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR NEARLY HALF A CENTURY

1400 E. 9 MILE RD., DETROIT 20 (Ferndale) MICH.

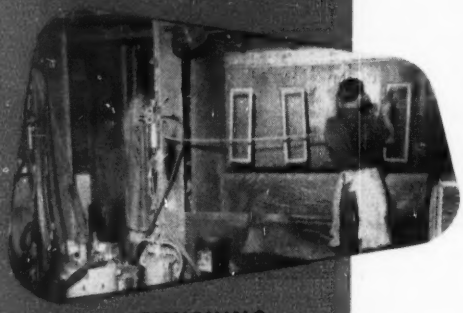
POLISHING



CLEANING



PLATING



FINISHING

New • EQUIPMENT • MATERIALS • PROCESSES

Heavy-Duty Cleaner for Iron and Steel

Oakite Products, Inc., manufacturer of specialized cleaning and related materials, has announced the development of Oakite Composition No. 26, designed to remove extra-heavy soils from iron and steel in one operation, thus eliminating the need for separate precleaning and alkaline cleaning procedures.

Oakite Composition No. 26, the manufacturer states, combines the heavy-duty cleaning action of both alkaline and solvent-type cleaners and also contains surface active agents, a combination which is highly effective in removing tenacious soils encountered in metal-processing. Material is said to possess a marked ability to wet and penetrate heavy soils quickly, efficiently loosening them so that subsequent rinsing leaves work surfaces thoroughly clean. Among the advantages claimed for Oakite Composition No. 26 are the following: (1) quick penetration of soils that reduces cleaning time; (2) thorough soil removal; (3) good rinsing action—no insoluble or oily films left on surfaces to interfere with painting or plating; (4) simplicity in use—heavy soils are removed in a single immersion; (5) economy—one-step cleaning procedure saves cleaning time and materials. Typical applications of this material reported include: removal of pigmented drawing compound; removal of solid-particle dirts and smuts; cleaning before vitreous enameling; pre-

cleaning buffed metal before electroplating.

Additional information concerning this new heavy-duty cleaner is supplied in a special Service Report, copies of which are available without charge to readers writing on company letterhead to Oakite Products, Inc., 120 Rector St., New York 6, N. Y.

Clair Model 202-A

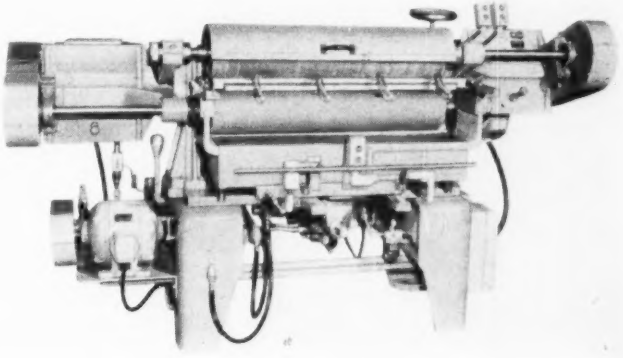
A double-roll surface finishing machine, designated the Clair Model 202-A, has been introduced by Clair Manufacturing Company, 1010 S. Union St., Olean, N. Y. It is designed for any degree of finish—from flash removal to mirror finish.

An enclosed compressed air circuit opens and closes the rolls for unloading and also provides automatic float for the rolls as they follow the geometry of contoured work at any predetermined uniform pressure. Incorporated in the same air circuit is a safety bar which causes the rolls to fly apart even at light body pressure.

Horizontal design allows waist high loading, clear visibility of work being processed, and efficient dust collection to the rear away from the operator. Rolls are 40 inches in width, with diameters ranging from 4 to 9 inches. To permit rapid changeover of operation, the rolls can be replaced in less than two minutes.

Among other optional features available on the Model 202-A are: wide choice of power, completely automatic cycling controls, direct or V-belt drives, automatic spray application of liquid abrasives, approved preloaders and work holders, heavy duty taper roller bearings or high speed ball bearings, adjustable maximum coverage of either 14 or 24 inches.

The Clair Model 202-A Surface Finishing Machine was developed through the cooperation of several producers of cutlery and hand tools for their specific



Clair Model 202-A Surface Finishing Machine

applications. It is particularly recommended by the manufacturer for faces of either open end or adjustable wrenches, wrench handles, wood chisels or cold chisels, cutlery blades and handles, and surgical instruments.

Vertical Rotor Dust and Fume Eliminators

Centri-Merge Vertical Rotor wet type dust and fume eliminators for industrial applications are manufactured by Schmieg Industries, Inc., P. O. Box 4701, Detroit 34, Michigan.

Two unit types are being offered. One unit is used for wet collection and elimination only, while the other is a combination primary dry and secondary wet collection unit. The latter has a built-in dry type precleaner for dry collection of heavier and most fine particles, and is particularly useful where material salvage is an operational requirement.

Both units combine the cyclonic principle of dust separation and positive high pressure water action to remove impurities from the air in a rotating torrent of water. For certain applications other liquids than water may be used. Capacities range from 500 to 50,000 c.f.m.

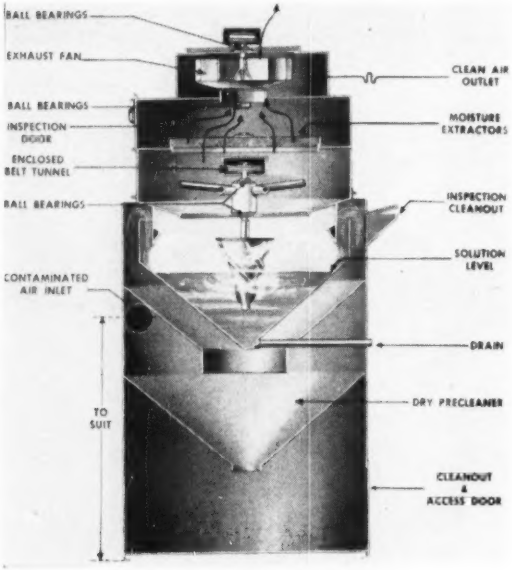
Advantages cited for the Vertical Rotor equipment are: low ratio of power to rated capacity; high ratio of water circulated to air volume handled; an independently driven rotor and fan to permit adjustments to meet load and operating conditions; automatic liquid level control; self-acting skimoff of floating particles collected in the tank; collection and elimination functions not affected by water failure; optional location of air inlet arm.

The units are available with an integrally constructed fan or they may be arranged for standard fan installation.

Disposal of material collected in the tank is by drag conveyor, hopper tank skimoff, or manual cleanout. After cleaning, excess moisture is removed from the air by extractors.

Clean-out doors, located on the outside of the units, permit cleaning while in operation.

Schmieg also engineers and manufactures production finishing equipment, spray booths, industrial ovens, mechanical washers, and sheet metal equipment and accessories.



Centri-Merge Vertical Rotor Wet Type Dust and Fume Eliminator

Tecsolv No. 383

A low-toxicity safety solvent for metal cleaning has been announced by Tect, Inc., of Dumont, N. J. Designated as Tecsolv No. 383, the solvent is stated to be non-flammable, fast evaporating and exceedingly low in toxicity.

Tecsolv No. 383 contains a very low percentage of non-volatile material and was first developed for the cleaning of electronic parts.

"Alodine" No. 1200

Several years of research by company chemists has led to the development of another "Alodine" by the American Chemical Paint Co., Ambler, Pa. Designated as "Alodine" No. 1200, this protective coating chemical forms an amorphous mixed metallic oxide coating of low dielectric resistance that provides unusually high corrosion resistance for unpainted aluminum, according to the manufacturer.

"Alodine" No. 1200 is the only essential chemical needed to prepare the coating bath and the final rinse bath. It can be used in tanks in an immersion process, or, in a multi-stage power washer in a spray process, or, with a slight adjustment of pH, with brush or portable spray equipment in a manual process. All three methods of application meet the requirements of Specification MIL-C-5541.

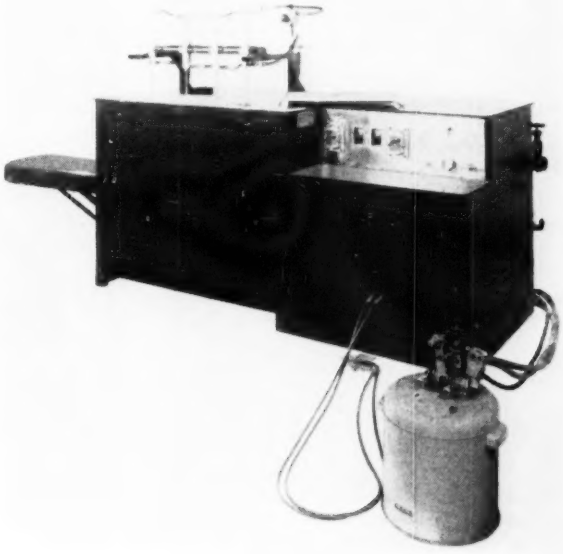
Coating time in an immersion process ranges from two to eight minutes and in a mechanized spray process, about 30 seconds. "Alodine" No. 1200 baths are operated at room temperatures (70 to 100 deg. F.).

The product is recommended by the manufacturer for coating wrought products that are not to be painted or are to be only partially painted; and for coating casting and forging alloys.

Automatic Spray Decorating Machine

An automatic spray decorating machine which is electrically dial controlled for loading or dwell time and gun spraying time, all within the tenth of a second, has been developed by the Conforming Matrix Corporation, 356 Factories Bldg., Toledo 2, Ohio.

According to the manufacturer, the machine can paint from zero to a 24-inch stroke. The air hold-down pistons are fully adjustable and automatically



Automatic Spray Decorating Machine

coordinated with the painting cycle. In stationary position, the machine will cycle up to 3,600 times per hour.

One of these machines is now painting 600 refrigerator door shelves per hour with masking over an area 24 inches long.

Filtration System for Filtration of Paint Spray Booth Water

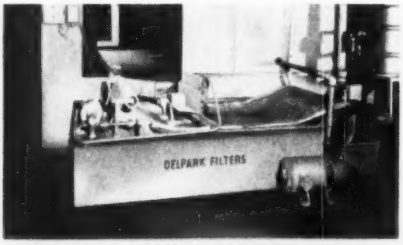
The Delpark Corporation and the Industrial Filtration Company, Dept. 532, Lebanon, Indiana, have perfected a filtration system for the removal of paint sludge and particles from paint spray booth water. Now, through the use of Delpark Filters, major problems formerly involved in the operation of paint spray booths are eliminated.

Of primary importance has been the necessity of removing as completely as possible the overspray from painting operations. External dirt, ever present in the atmosphere of the normal manufacturing plant has, in some instances, added to the problems involved.

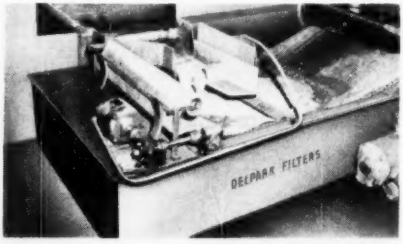
Spray booths are fitted with automatic skimming systems which move flocculated paint to a weir over which the paint matte is delivered to the Delpark Filter. Labor is saved, spray booth efficiency is increased and, where reclamation of pigment is desirable, salvage is made easier.

Rubberized Red Lead Metal Primer

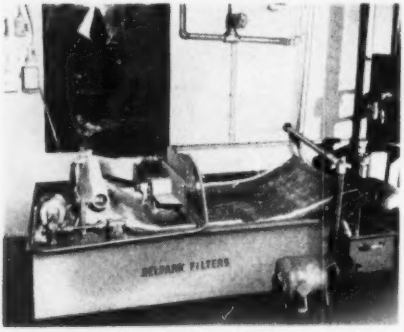
A red lead metal primer stated to provide a tough, hard adhesive coating on galvanized metals, structural steel,



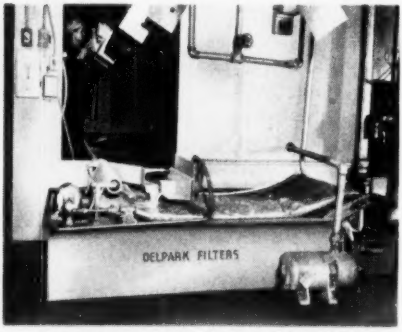
PUMP HAS JUST STARTED AND FLOW OVER WEIR IS BEGINNING TO SHOW. NOTE PAINT MATTE JUST BACK OF WEIR.



INCREASED FLOW OVER WEIR CAN BE NOTICED. PAINT MATTE IS BEGINNING TO BUILD UP IN FRONT OF WEIR. UNDER WATER JETS MOVE IT IRRESISTIBLY TO WEIR.



PAINT MATTE HAS BUILT UP IN FRONT OF WEIR MOMENTARILY, SHUTTING OFF FLOW OF WATER. AS WATER LEVEL BUILDS UP THIS PAINT MATTE WILL FLOAT OVER WEIR.



PAINT MATTE IS NOW FLOWING INTO FILTER AND BUILD UP CAN BE NOTED ON SURFACE OF FILTER.

iron, etc., has been developed by Foundry Rubber, Inc., 6100 River Road, Washington 16, D. C. Called "Paraprime," the product contains rubber which insures greater resistance to galvanic corrosion, acids, alkalis, chemicals, corrosive gases, and moisture.

Paraprime contains approximately 12 pounds of red lead as well as pure flaked lead. The addition of pure flaked lead improves brushability, speeds drying, and prevents "crawl" of the subsequent coat or coats.

Easily applied by brushing, spraying or dipping, Paraprime has the important advantage of drying quickly. It is supplied at brushing viscosity and may by thinned, if desired, for dipping or spraying.

Vantrol 5541 Cleaner

An alkali compound that will not etch or discolor aluminum, yet will perform the more difficult cleaning jobs by spray washing, has been developed by Van Straaten Chemical Co., 546 West Washington Blvd., Chicago 6, Ill. The cleaner, designated as Vantrol 5541, is a spray washer type cleaner, successfully field tested on both ferrous and nonferrous metals. It can be used on aluminum and zinc alloys, brass, copper and bronze, as well as steel. It has a rust retarding action on washed steel parts.

Vantrol 5541 produces a minimum of foaming and leaves no scaly deposits on the work or in the cleaning equipment, thus simplifying operation and maintenance.

Heat Exchangers with Graphite Tubes

The Industrial Filter & Pump Manufacturing Company, 5904 West Ogden Ave., Chicago 50, Illinois, has announced that its line of heat exchangers is now available with impervious graphite tubes in addition to the variety of metal tubes previously used. The graphite tubes can be had in both the tube and shell type and the tube bundle type heat exchangers. By combining any number of tubes, Industrial heat exchangers can be supplied to meet any heat transfer area requirement.

Graphite Tube Heat Exchanger

The company also states that, with a choice of graphite and metal tubes, a heat exchanger ideally suited to heating and cooling any solution used in pickling rooms, any plating solution, and any solution heating and cooling requirement in the processing industries, can be furnished.

Electrolytic Stripper for Zinc Base Die Castings

Enthone, Inc., Dept. PF, 442 Elm Street, New Haven, Conn., has announced the development of a liquid for electrolytic stripping of defective copper, nickel and chromium plates

from zinc base die castings. The product is called "Compound L-88" and is available as a ready-to-use liquid supplied in standard 13-gallon carboys.

The defective zinc die castings are made the anode in the solution at 6 volts. Nickel and chromium coatings are rapidly stripped. Copper coatings are readily stripped but somewhat more slowly. When all of the defective plate has been removed and the zinc is exposed, a passive film is formed that inhibits further attack. Thus, die castings may be stripped to leave a surface that can be readily prepared for refinishing by a light buffing operation. The stripping solution is operated from room temperature to 180 deg. F. and is stated to be extremely economical to use because there is no deterioration in the use of the stripper. The stripper has been in successful operation in industrial plants for over six months. Technical bulletin describing the product is available.

Combination Washing Machine

Metalwash Machinery Corporation, 915 North Ave., Elizabeth 4, N. J., has announced the development of a Combination Rotary Drum and Flat Belt Washing Machine.

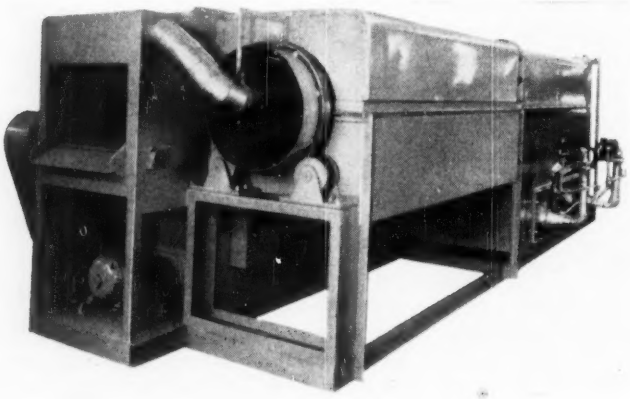
Designed to remove drawing compounds, cutting oils, grease, and shop dirt from metal parts, this combination machine has both a rotary drum and a flat belt conveyor.

Small parts that can be tumbled are washed, rinsed, and dried in the drum, while the tote boxes and larger parts are processed on the conveyor.

Fullanchor Wheelbrush

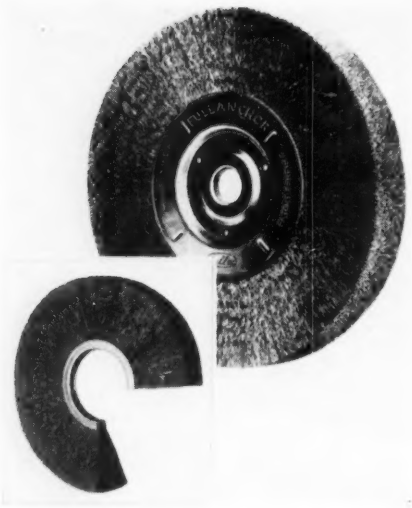
A wheelbrush of new design which provides longer brush life, improved performance, increased maximum wheel speeds, insured balance and extra safety, is now being produced by the Industrial Division of the Fuller Brush Company, Hartford 2, Conn. The tool can be used either singly or in multiple units in any of the many industrial applications where wheelbrushes are adaptable.

Features of the wheelbrush, called Fullanchor, stem from the new design. As the trim wears down, larger sideplates can easily be exchanged for smaller ones, thus exposing a new length of trim and greatly increasing the life of the brush. Brush balance is achieved by clamping an almost identical number of filaments in each tuft, then anchoring each tuft to the core with evenly spaced heavy wire staples driven through a continuous steel channel. This uniformity of fill keeps Fullanchor brushes to a closer



Combination Rotary Drum and Flat Belt Washing Machine

A
B
C
D
E
F
G
H
I
J
K
A complete line of Automatic Polishing, Buffing and Grinding Equipment engineered to the job
MURRAY-WAY means the "better way" in automatic buffing, polishing and grinding. Here we show a representative group of MURRAY-WAY equipment now in use in plants throughout the country. Even your toughest surfacing problems may be solved automatically and economically through MURRAY-WAY equipment and engineering experience.
(A) Six Micro-Polish Units in Series
(B) Micro-Polish Unit
(C) #60 Polishing Head
(D) 60 Series Belt Polishing-Head
(E) Horizontal-Platen Conveyor
(F) Continuous Dial Table
(G) Six Station Dial-Table
(H) Vertical-Platen Conveyor
(I) #50 Universal Polishing Head
(J) Indexing Dial Table
(K) Straight Line Conveyor
MURRAY-WAY CORP.
Maple Road E., Birmingham, Mich. P. O. Box 180.
AUTOMATIC POLISHING, BUFFING, GRINDING EQUIPMENT



The Fullanchor wheelbrush offers two new design features which provide longer brush life, increased maximum wheel speeds, insured balance and extra safety. These two features are a unique staple anchoring system (see insert) and exchangeable sideplates.

balancing tolerance than government standards require.

Shifting of the full material at high speeds is prevented by the staple anchoring system, since each filament is looped under the staple to prevent its pulling out. These factors of exceptional balance and fill anchoring not only lengthen the life of the tool, but also increase personnel safety, since chances of the brush throwing filaments or disintegrating from centrifugal force at high speeds are greatly reduced.

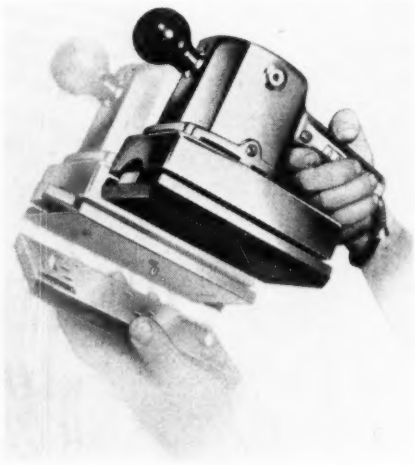
Filament fatigue, or breakage, a major cause both of wear and "flying filaments," is reduced with Fullanchor because the new design eliminates the usual single flexing or stress point by distributing it over a longer filament area. The new brush contains 20 to 40 per cent more fill material per brush, providing a denser brushing surface, which results in faster cutting action, better finishes and longer brush life.

The jointless steel core, the measured, looped filaments, plus the uniform weight and balance of brush material gives greatly increased resistance to disintegration at high speeds. Extensive tests have shown that the 8 inch wheelbrush, for example, will withstand at least 8,000 r.p.m. before disintegrating. This is well over twice what conventional wheelbrushes are expected to stand under ordinary circumstances.

The new wheelbrush comes in 6, 8, 10 and 12 inch sizes, filled with wire of oil tempered, high tensile, crimped or stainless steel, brass or nickel. The wire material comes in commonly-used gauges. All brushes may be used offhand, mounted on flexible shafts, fixed on brushing machines, lathes and motors, or ganged on special machines when a wide brushing surface is required.

Motor-Driven Sander

A rotary motor driven sander with "straight-line reciprocating action" and the power to do a professional finishing



Motor-Driven Sander

prior to MACHINING

prior to PLATING

METALWASH designs and manufactures washing, pickling, drying, and phosphating machinery for the widest range of applications.

prior to PAINTING

prior to HEAT TREATING

prior to ENAMELING

METALWASH
MACHINERY CORPORATION

915 North Ave., Elizabeth 4, N. J.
Representatives in principal cities

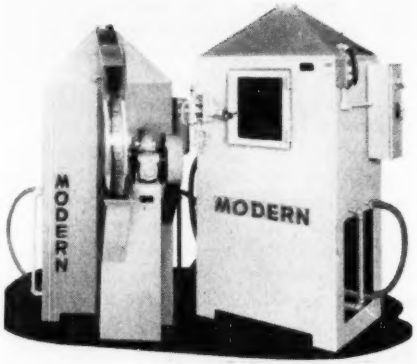
job has been produced by the Dremel Mfg. Co., Racine, Wisconsin. Model "53" is the first motor-driven sander of its kind to offer straight-line action. The makers say it will not gouge, leave lap marks, cut orbital swirls, or other hard-to-cover abrasive patterns.

The sander also features a very unique paper holder assembly that detaches from the machine at the flick of a finger. An extra paper holder unit is furnished so that grits can be switched quickly without bothersome paper change. It is designed for rugged duty.

Compact in construction, it weighs approximately 5¼ pounds, uses standard-size 3-2/3 x 9 inch abrasive sheets. It has a polished aluminum housing, lifetime sealed ball bearings, and is driven by a powerful 110-120 volt, 60 cycle a.c. rotary motor.

Light Metal Parts Deburred Rapidly by Blast Machines

Fast production deburring of "soft" metal parts, using either a continuous rotating process for small parts or a stationary clamping arrangement for larger units, is possible with two standard Maizo Blast machines, designated as Model MA-24 and MA-1, developed by Modern Industrial Engineering Co., 14230 Birwood Ave., Detroit 4, Michigan. Both standard machine types are



(Left) Modern Model MA-24 Maizo Blast Machine. (Right) Modern Model MA-1 Maizo Blast Machine.

designed to remove light burrs from metals in the range of aluminum to mild steel. In both models, maize, or a similar "soft" material, is blasted against the parts under factory airline pressure. These machines are specially suitable to deburring parts that would be damaged by tumbling.

A ferris-wheel type fixture rotates continuously between two reciprocating blasting guns in Model MA-24 at the rate of approximately one revolution every five minutes. The revolving wheel carries 16 to 24 pieces in holding wires bent to suit the part and yields a production rate of 192 to 288 pieces per hour at 100 per cent efficiency. Speed of rotation can be varied as required by hardness of the parts being blasted.

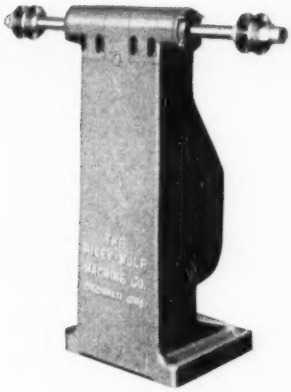
Housing is box-edge welded sheet steel. An access door is provided with a window for observation of parts during blasting operation. Normal plant air is all that is required for the machine, which operates at 60 to 80 pounds per square inch.

Larger parts not suitable to the continuous machine can be handled in Model MA-1, a stationary unit in which parts rotate on a fixed axis in a fixture.

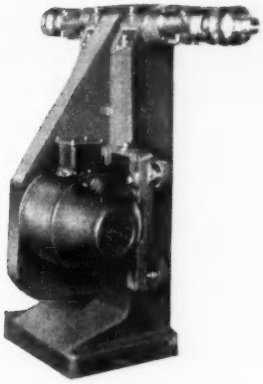
CHEMSTEEL CONSTRUCTION COMPANY, INC.
301 Chemsteel Bldg., Walnut St., Pittsburgh 32, Pa.

Send data on Engineering & Construction facilities for
ACID-ALKALI-PROOF CONSTRUCTION
of processing & storage tanks & flooring in
☐ Steel Plant ☐ Chemical ☐ Textile ☐ Food

NAME.....
COMPANY.....
ADDRESS.....
CITY..... ZONE ..... STATE .....



Front view of Buffer with open-type spindle mounted on two ball bearings. Recommended for higher speeds and where utmost freedom of operation around wheels is required.



Rear view of Buffer with encased-type spindles mounted on four ball bearings. Recommended for heavy duty service. Note simplicity and rigidity of motor mounting.

HERE'S HOW

HISEY BUFFERS ARE MADE!

There isn't much to a buffer—a spindle and a pedestal, with a Motor to drive it. For long, trouble-free production, however, these units, especially the spindle, must be right.

The HISEY spindle has a large, one-piece alloy steel shaft mounted on ball bearings. The ball bearings are all locked individually on the shaft and lubricated by oil controlled by sight level gages. Bearing housings are sealed—dust and dirt cannot get in and oil cannot get out.

Brass nuts with Acme (flat-top) threads clamp the wheels. The soft nut will wear, prolonging the life of the more expensive shaft indefinitely.

V Belts transmit power from motor to shaft. Spindle speed can be changed by merely substituting smaller or larger motor pulley. Any standard power motor can be used.

The cast iron pedestal is not mere bulk, but scientifically designed and proportioned for rigidity, yet affording ample foot room for operator.

HISEY Buffers are made in sizes from ¼ to 30 H.P.

Write for Catalog 72 PG today!

Hisey THE HISEY-WOLF MACHINE CO.
CINCINNATI 8, OHIO
Division of The Cincinnati Electrical Tool Co.

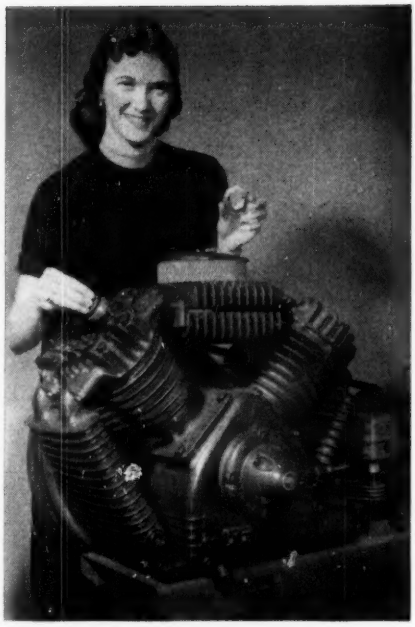
"Short-Range" pH Papers

Manufacturer: Fisher Scientific, Chemical Division, 717 Forbes St., Pittsburgh 19, Pennsylvania.

A kit of six "short-range" indicating papers has been produced. Each paper records a distinctive color for each half unit of the pH scale of 0-14, and permits estimations of pH to one-fourth unit or closer. Used with the Fisher's long-range Alkacid pH Tester, the user merely moistens a strip of the appropriate paper and matches it, while wet, with the color key printed on a plastic dispenser.

Valve Spring for V-type Air Compressor

A simple valve spring arrangement has made possible greater speeds, and has improved the efficiency of V-type air compressors manufactured by the DeVilbiss Company. Based on a patent granted to Harold R. Gamble, a company engineer, the valve spring consists of two curved pieces of Swedish spring steel. The two parts are installed with their concave surfaces opposed.



DeVilbiss V-type Air Compressor fitted with new-type Valve Springs.

Replacing a spiral spring in the compressor, the new type springs have shown very little wear and no failures when installed in compressors operating 'round the clock. Physical properties of the new type spring makes possible greater compressor speeds.

C-610 Masking Tape

An extremely white paper tape, called C-610 has been developed by the Research Department of Arno Adhesive Tapes, Inc., 520 E. 6th St., Michigan City, Indiana. Although the primary purpose of developing this par-

YOU
can *rely* on
RANDOLPH
for prompt shipment
in any quantity of
Performance - Proved Government Specification
FINISHES
Lacquers • Enamels • Dopes • Thinners
Clear Metal Finishes • Colored Lacquers
Clear S.G. for Metal • Texture Enamels
Specialized Production Finishes
Aircraft Finishes
RANDOLPH
PRODUCTS CO.
CARLSTADT, NEW JERSEY

SPEEDIE
SATIN FINISH

BETTERS RIGID SPECIFICATIONS OF NOTED GOLF CLUB MANUFACTURER

—and if jobs in *your* buffing shop require the use of a superior greasless composition—you, too, will get "greater mileage" from *Speedie* Satin Finish.

It has excellent adhesive character! An added advantage is the help it gives the buffer. Since the compound is colored *red* the buffer knows at all times how much he has on his wheel, thus reducing amount of compound used.

Whether you want a coarse *Speedie* Satin Finish for polishing or an exceptionally fine one for jewelry work, here is the answer to your greaseless problems. Available in all size grits from No. 80 through No. 400.

Write today on your company letterhead for samples of the *new and improved Speedie* Satin Finish, advising size grit required. And while you're at it, why not investigate the full line of Buckeye's outstanding *Speedie* Buffing and Polishing Compositions?

POLISHING ROOM SUPPLIES AND EQUIPMENT

BP

THE BUCKEYE PRODUCTS CO.
7038 Vine Street Cincinnati 16, Ohio
Cable address: Buckprod

ticular type of tape was for the printers who print pressure sensitive labels, advertising stickers, etc., it has also been engineered to make a successful and economical masking tape in painting operations where great conformability is not required. It can be stripped off of the object without leaving residue or transfer after equipment has passed through a drying oven. C-610 tape has an adhesive mass which is non-stain to metals or lacquer finishes, and is non-toxic. Adhesion to test panel (Bakelite) is 18 ounces; tensile strength is 21 pounds and its thickness is 8/1000ths. It is available in roll lengths of either 60 or 120 yards, and in any width from ½ inch to 36 inches.

Infra-Red Oven

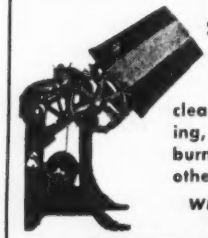
A Large Size Infra-Red Oven has been announced by the Wil-Son Mfg. Co., Dept. PF, Cloverport, Kentucky.

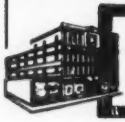
IS YOUR PROBLEM
POLISHING?

HOLLAND SUGGESTS:

Motor Driven Tilting Tumbling Barrels for cleaning, polishing, grinding, deburring, sanding, burnishing and various other applications.

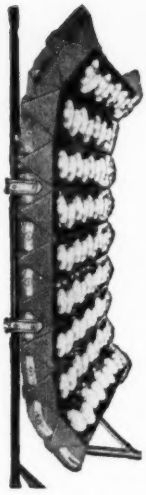
WRITE for New Holland Equipment Catalog





J. HOLLAND & SONS, INC.
MANUFACTURERS • DEALERS
276 SOUTH NINTH ST. • BROOKLYN, N.Y.

These units are for large area, side heating applications, and are available in 32 and 48 inch long standard sections. The Patent-Flex design permits tight multiple section joints, with each section individually adjustable from the outside. Each lamp row has two complete panels of asbestos insulated, metal backed construction to keep the heat within the oven.



Infra-Red Oven

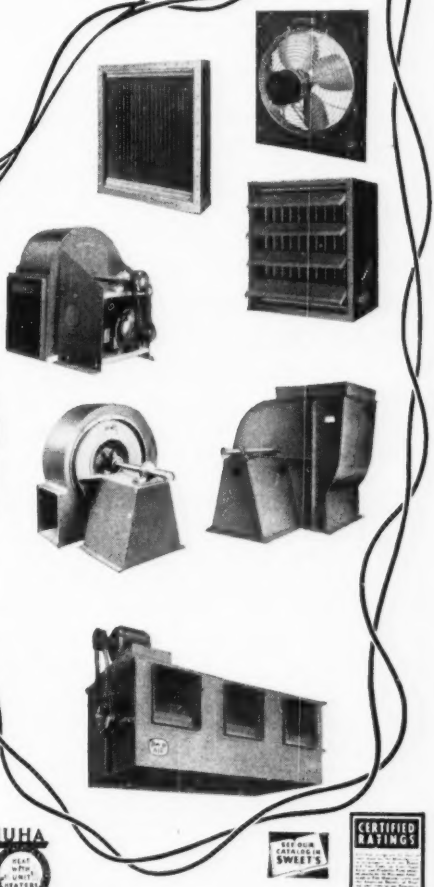
Oven is equally well suited for both conveyorized and non-conveyorized batch oven work. This oven is installed in such a way that the contour of the oven may be changed while it is in actual operation. Thus the heat rays from every lamp in the oven can be directed to the work.

In order to reduce cleaning costs to a minimum, and assure maximum operating efficiency, these ovens are primarily designed for use with the long life, R-40 Reflector Lamp. An occasional wiping of the face of the lamp bulbs is the only cleaning required, and is the user's assurance that the equipment will always operate at maximum efficiency.

Hysol 6020

Hysol 6020, developed by Houghton Laboratories, Inc., 322 Bush Ave., Olean, New York, is a liquid epoxide resin which will cure at room temperatures through the additions of selected catalysts. It is stated to have excellent electrical insulating properties, low

nyb UNIT HEATERS



BUILT TO MEET MODERN INDUSTRIAL REQUIREMENTS

For Continuous Heat Service up to 150 Pounds Steam Pressure

Horizontal Type

Ceiling suspension type with heavy duty welded steel fin-and-tube heating element. The rugged arc-welded construction outperforms and outlasts heating elements made of thinner non-ferrous metals. Avoids their expansion-contraction faults, yet has the same BTU efficiency. Ten basic sizes with capacities from 30 Mbh to 490 Mbh. Totally enclosed motors. (Extra heavy non-ferrous coils also available.)

Vertical Projection Type Also Available

For efficient heating from high-ceiling areas—for door heaters over small openings—or where the horizontal type is not applicable. Ten basic sizes; capacities from 27 to 332 Mbh.

Write for Bulletins

No. 513 Horizontal Type

No. 516 Vertical Type

nyb

IUHA

SEE OUR CATALOG IN SWEET'S

CERTIFIED RATINGS AUTHORIZED BY H.A.F.M.

All New York Blower Company products are laboratory tested, accurately rated and fully guaranteed in strict accordance with Standard Test Codes.

THE NEW YORK BLOWER COMPANY

SALES OFFICES • 3167 SOUTH SHIELDS AVENUE • CHICAGO 16

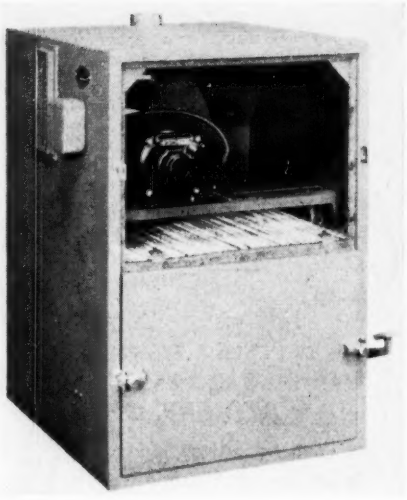
FACTORY, LAPORTE, INDIANA

water absorption and also to provide outstanding resistance to impact. According to the manufacturer, additions of fillers to the product provide for better heat conductivity, lower shrinkage, and reduced thermal expansion.

Pigmentation has been added to Hysol 6020 to provide the product in nine standard colors. Other colors can be furnished to specifications. The small amounts of inorganic pigments added to the base do not materially change the properties of the compound, it is claimed.

Side Panel Exhaust Vent Now Optional on Some Torit Dust Collectors

The placing of an exhaust outlet in the left side panel, as optional construction, on several of its smaller cabi-



Torit Dust Collector with optional side-panel exhaust vent

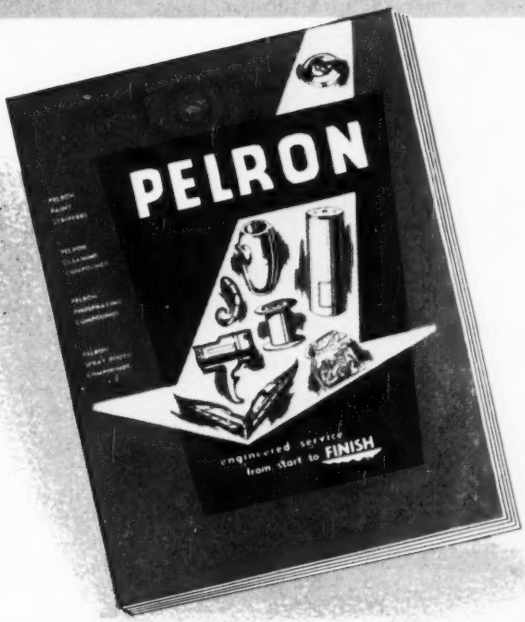
net-type dust collectors has been announced by Torit Mfg. Co., 296 Walnut St., St. Paul 2, Minn. The purpose of the vent is to provide efficient recirculation of the cleaned air where the most practical location for the dust collector is beneath a bench or work table. According to the manufacturer, the side-exhaust unit can also be used in many close-quarter locations where clearance over the unit hampers using the regular top-panel exhaust.

The most popular unit equipped with the left-panel outlet is said to be the No. 66 which stands only 33 inches high and fits easily under most workbenches. This unit is powered by a ½-h.p. motor and moves 370 cubic feet of air per minute at an air speed of 7,500 feet per minute. The unit also has a static pressure of 4½ inches.

Orbit Sander

The Mall Orbit Sander gives an extra-fast finish to wood and metal

NEW FINISHING BULLETIN



EVERY PRODUCTION MAN WILL WANT A COPY

Here is a bulletin that shows you how to cut finishing costs and increase profits. It shows how PELRON services and products make it possible for manufacturers to perform cleaning, phosphating, paint stripping and spray booth operations faster, more economically and with a better end-product as a result. Send for your *free copy* today!

PELRON® **CORPORATION**

7740 W. 47th Street • Lyons, Illinois

CHICAGO • MILWAUKEE • CLEVELAND • INDIANAPOLIS • ROCK ISLAND • SOUTH BEND • CINCINNATI • ST. LOUIS • BUFFALO • DETROIT • GRAND RAPIDS • NEW YORK

Industrial Oils and Chemicals of Better Production at Lower Cost.

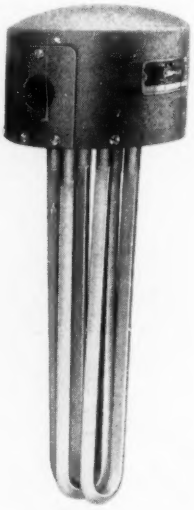
surfaces. Rapid oscillating movement of the sander results in mirror smooth finish ready for any paint, lacquer or varnish. The Mall Orbit Sander will work equally well on flat, curved, horizontal or vertical surfaces.

Aluminum alloy construction of the Mall Orbit Sander cuts its weight to five pounds. A full-grip, trigger switch handle and front knob contribute to quick and easy maneuverability. The sander has ¼ inch orbital motion operating at 4500 cycles per minute; runs on standard 115 volt ac-dc.

For additional information contact Mall Tool Company, 7725 South Chicago Ave., Chicago 19, Illinois.

Electric Immersion Heater

A flanged tubular-type electric immersion heater has been added to the Chromalox line of electric heating units. It supplements the present series of immersion units used for heating water, oil or paraffin by providing higher heat output and a new size flange 5⅜ inches in diameter.



Flanged Tubular-Type Electric Immersion Heater

Heating elements of the new unit are available in two sheath materials. Type TM-4, for water heating, has copper sheathed elements brazed to a brass flange. Type TMO-4, for use in oil or paraffin, has steel sheathed elements welded to a cast iron flange.

Both types are single phase only and available in 120, 240, 480 and 550 volt ratings with capacities ranging from 4 to 12 kilowatts.

For more complete information write to Edwin L. Wiegand Co., 7552 Thomas Blvd., Pittsburgh 8, Pa. Ask for Bulletin SD-169.

CD Strip 100

A fast drying, tough, strippable coating has just been developed by Chemical Development Corporation,

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.

Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.

catalog and price list.
Write (Dep't. P) on your letterhead for

DIXON & RIPPEL, INC. KINGSTON, N. Y.
ESTABLISHED 1856

NOW...GREATER ECONOMY and PERFORMANCE THAN EVER
in spraying hot paint on all finishes!

THE BEDE "ECON-O-MATIC" PAINT HEATER

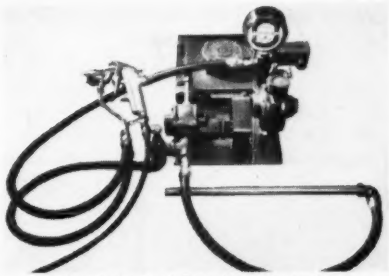
The New Model E Series at a new low price
Another example of Bede leadership

REVOLUTIONARY DESIGN
now provides greater simplicity, efficiency, and safety for continuous or intermittent applications, fixed or mobile.

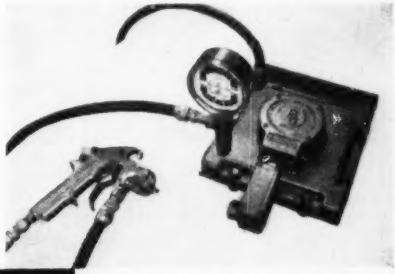
The only heater of its type with built-in, time-tested Bede performance and safety, plus these important new advantages...

- ★ *Greater reservoir of latent heat*
- ★ *Greater heating capacity*
- ★ *Greater heat transfer efficiency*
- ★ *Uniform performance under all conditions*
- ★ *Quick, easy clean-out*
- ★ *Versatility of multiple units*
- ★ *Steady (adjustable) air power*

Optional Mounting Bracket and Conveyaroll Dolly
EASY TO INSTALL...Write or phone for descriptive literature.
U.S. Pat. No. 2,576, 588



The Bede Model E "Econ-O-Matic"
Circulating Paint Heater
For larger, steady applications **$199.50**



The Bede Model E "Econ-O-Matic"
Non-circulating (standard) Paint Heater
For smaller or intermittent applications **$85.50**

BEDE PRODUCTS Inc.
Industrial Finishing Equipment
1110 Brookpark Road, Cleveland 9, Ohio
Telephone ONtario 1-9400

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL PAINT HEATERS

Danvers, Mass. Called CD Strip 100, it is supplied as a solvent solution and is easily applied by dipping, brushing, or spraying. It is water insoluble and extremely strong even in thin gauges.

CD Strip 100 is now used for the protection of aluminum and other metals during drawing and general fabrication. It is simply applied to the surface and allowed to dry. It can be easily removed, when desired, by stripping or peeling back the entire coating in one piece. It is bright red in color so that the operator can quickly determine what sections have been treated.

CD Strip 100 can also be used in place of masking tape to protect certain areas during painting. CD Strip 100, because it is a liquid and flexible, can be applied as a smooth coating over any surface.

Another interesting use is for application to spray booths. The interior of the booth is coated with CD Strip 100. Excess paints and enamels from regular painting operations will build up on the original coating and can be peeled off in large slabs or sections.

A special bulletin will be sent on request.

DANIELS
#4 OLS
in unloading position
PLATE SMALL PARTS
with the DANIELS OLS
For plating die castings, stampings, screw machine parts, castings or any small parts in bulk, this Daniels OLS Oblique Plating Barrel is unsurpassed.
Write for complete details today
DANIELS PLATING BARREL & SUPPLY CO.
Electroplating and Polishing Equipment and Supplies
129 Oliver Street, Newark 5, N. J. • Tel. MArket 3-7450

Corrosion Resistant Duct

Metalwash Machinery Corporation, 915 North Ave., Elizabeth 4, N. J., now designs and fabricates corrosion-resistant vent systems and duct work of Uscolite, a U. S. Rubber product.

Uscolite is a thermoplastic synthetic rubber-resin composition possessing an outstanding combination of structural rigidity, high impact strength, dimensional stability, and chemical resistance.

Metalwash has been using Uscolite extensively for some time in the manufacture of pickling, drying, and phosphatizing machines where hoods, ducts, stacks, and air-washing systems form an integral part.

Metalwash now designs and installs complete Uscolite ventilating and duct systems for factories, chemical plants, and laboratories where corrosive fumes formerly were difficult or impossible to control. Metalwash-fabricated Uscolite is now being erected as a permanent installation.

Rotofinish Coruloy "T" Chips

Now available to users of the Roto-Finish Processes, Coruloy "T" chips are described by the manufacturer, Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich., as being extremely fine grained, tougher and longer-wearing than any of the aluminum oxide chips previously offered.

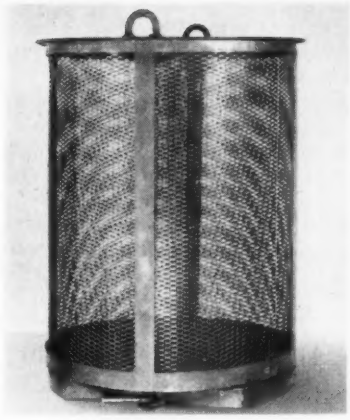
Coruloy "T" chips are particularly useful for fast-cutting operations on

both ferrous and non-ferrous metal parts, particularly when it is necessary to remove a relatively large quantity of metal during a short processing cycle, and when deburring is the primary reason for processing. Outstanding results have also been obtained in using the new Coruloy "T" chips for efficient deburring and descaling of hardened steel parts of all types. This new abrasive medium is available in all the regularly listed Roto-Finish chip sizes.

Expanded Metal Degreasing Basket

Degreasing basket, made by Stanwood Corporation, Chicago, utilizes Wheeling expanded metal to provide maximum open area and penetration of liquid or air, combined with superior strength and durability.

According to the manufacturer, the smooth diamond pattern of the expanded metal prevents lodging of liquid and waste particles in corners, with consequent reduction in size of openings.



Expanded Metal Degreasing Basket
(Photo courtesy Wheeling Corrugating Company)

use

Electro-Glo

ELECTRO-POLISHING CONCENTRATES

SAVE TIME . . . SAVE LABOR . . . INCREASE PRODUCTION
SMOOTHS . . . BRIGHTENS . . . DEBURRS

Removal of metal can be controlled down to .0002 of an inch.

COPPER ALLOYS	ELECTRO-GLO #200
AUSTENITIC STAINLESS STEEL	ELECTRO-GLO #300
MARTENSITIC STAINLESS STEEL	ELECTRO-GLO #400
CARBON STEEL	FERRO-GLO #500

WRITE FOR COMPLETE DETAILS

Electro-Glo COMPANY • 1432 SO. TALMAN AVE. • CHICAGO 8, ILL.

DISTRIBUTED BY

WAGNER BROTHERS, INC.
400 Midland Ave., Detroit 3, Mich.

BAKER DISTRIBUTING COMPANY
1105 W. 11th St., Cleveland 13, Ohio

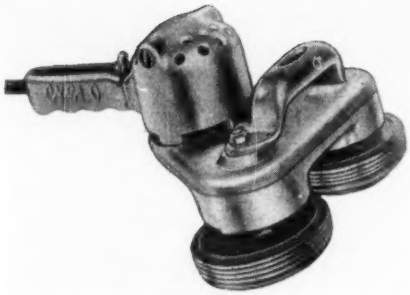
Stanwood Corporation makes baskets and trays of Wheeling expanded metal in a variety of other sizes and shapes to suit special industry needs.

Made by slitting and stretching solid steel sheet of various gauges into one-piece panels that can be easily formed and welded to steel framework, Wheeling expanded metal has a high strength /weight ratio that is a distinct advantage in many such industrial applications.

Cyclo Sander-Polisher

A new, translatory action sander-polisher for sanding, filling, feathering and polishing metals, enamel, and other surfaces has been announced by the Cyclo Mfg. Co., 2140 S. Delaware St., Denver, Colorado.

Two counterbalanced heads eliminate all centrifugal force and give the finest hand finished results without swirl marks, scuffing or burning.



Cyclo Sander-Polisher

Special cups are available for all types of grinding, smoothing and polishing of base metals and other raw surfaces. Regular wiping cloths, chamois or lambs wool may be used for final finishing on enamel, wax and other high gloss surfaces.

Equipment weighs approximately 8 pounds and is available in either electric or air operated models.

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.

5204 Harvard Avenue
Cleveland, Ohio

Brady Write-On Label

Manufacturer: W. H. Brady Co., Dept. 403, 776 W. Glendale Ave., Milwaukee 12, Wisconsin.

Combining a printed form and write-on space all on one label, the printed part of the Brady "Write-Ons" tells if the item is ACCEPTED, REJECTED or OVERHAULED; whether to RETURN TO VENDOR, HOLD FOR INSPECTION or REWORK. A different color background for each wording provides instant identification for quick classification. The write-on space furnishes ample room for necessary data which may be indicated with pen, pencil, ballpoint, rubber stamp or typewriter.

Mounted on handy dispenser cards which can be conveniently carried in shirt or trouser pocket, the smooth, rigid card surface serves as a portable

writing board, important when labels must be applied to rough, curved, or hard-to-get-at places.

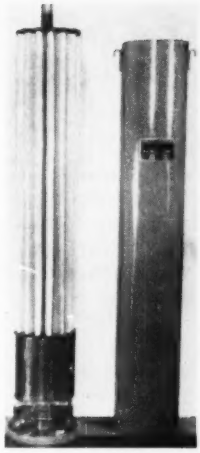
The labels are recommended for use by: inspectors, to accept, or reject a job; toolmakers, to mark dies, tools, and gauges; lab technicians, to mark specimens; storekeepers, to identify bins and individual parts; maintenance and repair crews, to date installations and service, to identify equipment and machinery for overhaul or repair.

Model A-100-D Condensi-filter

Manufacturer. Hankison Corp., 279 Biltmore Bldg., 951 Banksville Rd., Pittsburgh, Pennsylvania.

To provide greater economy of operation, the Model A-100-D Condensi-filter uses a type of disposable filter cartridge constructed of wire mesh and flannel cloth. The cartridge provides over twenty-four square feet of filtering area, an increase of 37 per cent over previous models.

According to the manufacturer, when the filter becomes dirty, the entire cartridge is replaced by removing one nut at the top of the Condensi-filter, eliminating costly shut-downs and reducing maintenance to a matter of minutes. Under normal working conditions the unit is stated to operate five to six months without renewing the filter.

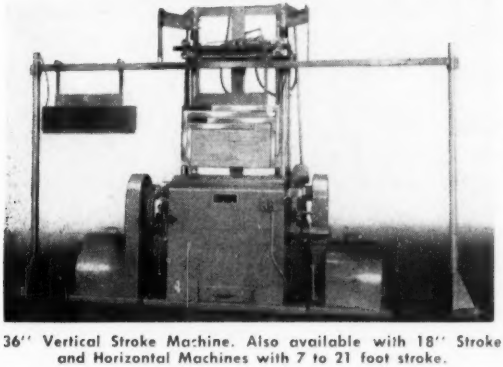


Model A-100-D Condensifilter.

More than 950 square inches of sur-

CENTRAL POLISHING MACHINES

Double Roll, Vertical Type — 36" Stroke



36" Vertical Stroke Machine. Also available with 18" Stroke and Horizontal Machines with 7 to 21 foot stroke.

Let us tell you how you can speed up your polishing operations with Central Machines. Full information on request.

...for high production and fine finishes

For polishing a wide variety of shapes, contours and flats. Fast, economical, simple to operate. Hydraulically operated and controlled. Women operate them.

Our Patented Hydraulic Contour Device gives a high finish to many difficult shapes. Stroke is instantly adjustable from 2" to 36". Work may be oscillated across face of rolls, at the turn of a valve, for a high finish and more even roll wear.

Central Polishing Machines may be set in batteries with conveyor feed system when a sequence of polishing operations is required. Conveyor and magnetic chucks can be furnished.

CENTRAL MACHINE WORKS

72 COMMERCIAL ST. • WORCESTER, MASS.

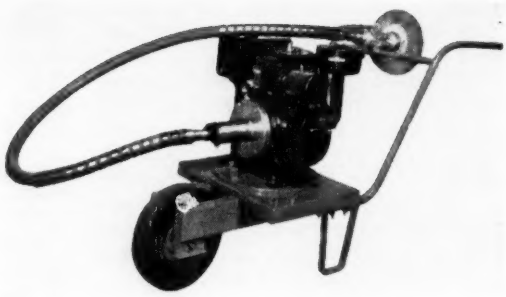
face area cools the compressed air traveling through the condensing section. Water and oil, in entrained and vaporized states, are removed by condensation.

Reported to be completely automatic, the Model A-100-D Condensifilter incorporates a snap-action, spring-loaded trap, designed to prevent leakage or pressure loss, through which accumulated condensate is discharged.

Flexible Shaft Grinder

The Franklin Balmar Corporation, N. A. Strand Division, Baltimore, Md.,

Strand Model DGX-7 Mobile Flexible Shaft Grinder



has developed a new gasoline engine powered flexible shaft grinder.

Designated as Model DGX-7, the new Strand Mobile Gasoline Engine Powered Grinder is designed to eliminate the need for air compressors and where electric power is not available for grinding, rotary filing and other cutting or finishing operations.

The unit consists of a 5 h.p. gasoline engine mounted on a wheelbarrow type truck. A 7-foot flexible shaft is attached directly to the shaft of the motor. A ¾-inch capacity arbor style hand spindle at the end of the shaft takes any conventional flexible shaft tool and grinding wheels up to 10 x 1½ inches. Right angle handpieces are also available.

The engine itself is mounted on the platform by means of a swiveled base. The base moves a full 180 deg. to allow use of the shaft in any direction. The swivel plate itself locks in five different

today's "wonder drug" for industry

Saves up to 95% of FINISHING COSTS on almost all types of parts!

Write for NEW, FREE 52-page Catalog, "Supersheen Speed Finishing." Gives complete story — hundreds of "before and after" pictures.

Dept. A-9

ALMCO Supersheen
AMERICA'S LARGEST MANUFACTURER OF ADVANCED BARREL FINISHING EQUIPMENT – MATERIALS AND COMPOUNDS
ALBERT LEA, MINNESOTA

CORROSION-PROOF LININGS CEMENTS BRICK

- TANKS, FLOORS, FUME DUCTS AND PROCESS EQUIPMENT
- COMPLETE LINE OF PROTECTIVE COATINGS . .

Over a Quarter Century of Experience

CEILCOTE CORROSION-PROOF MATERIALS • CONSTRUCTION • SUPERVISION

The CEILCOTE Co. 4832 RIDGE RD. CLEVELAND 9, OHIO

operating positions.

In addition to its use as a mobile flexible shaft machine, the new unit can also be used as a fixed bench tool. The handles with which the unit is moved from place to place are fitted with a special quick acting hand clamp. The handpiece on the end of the flexible shaft may be easily and quickly locked in this clamp, thus providing the fixed bench tool.

Heavy Duty Electrolytic Cleaner

More thorough removal of stubborn and heavy deposits of organic and inert foreign matter from metal surfaces preparatory to plating is facilitated by use of Klem Cleaner "197."

Klem Chemicals, Inc., 14401 Lanson, Dearborn, Michigan, in whose laboratory the new heavy duty electrolytic cleaner has been developed, advise that "197" is for use on ferrous metals and may be used with either direct or reverse current. It also is reported to have high conductivity qualities and long life.

Polishing and tumbling compounds that harden and are difficult to remove from pits and crevices are among the types of soil more readily freed by the electrocleaner when "197" is added in concentrations of 2 to 8 ounces to the gallon of water.

Chem-Bond Phosphate Coating

An improved modification of Chem-Bond, an acid phosphate cleaner, has been introduced by the Bell-Ray Chemical Corp., 524 W. Madison Street, Milwaukee 4, Wisconsin. This metal conditioner in one single step removes rust, corrosion, grease and mill oil, prevents

Are You In This Fix?

Here's A Way Out—

Let POTTER help you save money safely on Thinners

We make nothing but **thinners**—For over a quarter of a century, we have been saving money for big and little customers. They like us because we make the thinner they want at a **money-saving price.**

Let us show you how a Lacquer Thinner **SPECIALIST** can supply you with the **right** Thinner . . . and still save you money.

Just fill out form below and mail today. We'll work out a Thinner *especially for you*, and send a sample. We know we can **save** you money.

POTTER PAINT CO., INC.
CORTLAND 2, N. Y.
THINNER SPECIALISTS

The product we make is _____
We use Lacquer Thinner for:
☐ Spray ☐ Dip ☐ Cleaning ☐ Other _____
We use Lacquer Thinner on:
☐ Metal ☐ Wood ☐ Other _____
We want it to dry:
☐ Fast ☐ Slow ☐ Medium

Name _____
Address _____
City _____ Zone _____ State _____

corrosion and oxidation, and establishes a new type phosphate coating, to which paint, enamel, lacquer and plating will adhere.

Chem-Bond is applicable as an immersion dip, a brush-on wipe-off operation or as a spray.

The improved version of Chem-Bond is said to impart to coatings a superior impact-resistance. A further advantage is that ferrous metals, zinc base die castings, galvanized iron, aluminum, copper and brass can all be cleaned and phosphated using the same solution. This is important in plants where a variety of metal products have to be processed.

Descriptive folder available.

PRODUCT LITERATURE

In requesting copies of catalogs or bulletins mentioned in this issue — use the READER SERVICE CARDS between the covers.

FELT, A MECHANICAL AND ENGINEERING MATERIAL. Prepared by **American Felt Company, Engineering and Research Laboratories,** Glenville, Connecticut. 54 pages, illustrated. Price, $1.50.

The publication contains information regarding the mechanical, physical and chemical properties of felt. Specific applications in a wide range of industries are included. Standard specifications for felt and standard methods of testing felt are described.

HUNTERLAB CIRCULAR. A circular describing Hunterlab and its method of operation in the field of appearance technology is available from **Hunter Associates Laboratory,** 5421 Brier Ridge Rd., Falls Church, Va. The capabilities and limitations of appearance science are not generally appreciated. Because electronic devices can detect many phenomena of which humans would not otherwise be aware, there is a tendency to expect electronic gadgets to exceed the human eye in the detection of light. Actually, the human eye is both sensitive and versatile. It takes precise instruments properly applied to equal or even approach the eye in some of its preceptive skills.

Hunter associates laboratory offers know-how and experience apart from an established line of instruments. Examples of Hunter lab projects are cited in the circular.

WRITE FOR INFORMATION AND LITERATURE

ELIMINATE ZINC PLATING HEADACHES

by purifying your solution with

McKeon's **"ZINC BRITE"**

Write for complete information .

Sulphur Products Co., Inc.

GREENSBURG 6, PA.

For a real good polishing job use

Keystone TURKISH Emery

FRESH SUPPLY AVAILABLE

KEYSTONE EMERY MILLS *Write for Sample* **4316 Paul St., Phila., Pa.**

"TOMORROW'S PRODUCTS TESTED TODAY," is the title of an illustrated booklet available from **South Florida Test Service,** 4201 N.W. 7th St., Miami 34, Florida. The booklet describes the way in which the company's enginering, inspection, research, and testing facilities are being applied to the solution of industrial problems involving materials and coatings. The facilities of South Florida Test Service laboratories are listed, and the scope of service available is described.

MOTOR-GENERATOR CATALOG. The Chandeysson low voltage direct current motor generator designed for the electrolytic industry is fully described in **BULLETIN D101,** issued by the **CHANDEYSSON ELECTRIC COMPANY,** 4082 Bingham Ave., St., Louis 16, Mo.

Pointing out that the generator has been designed especially for use in connection with electroplating, electroforming, electrocleaning, electrotyping, chemical treating, electrogalvanizing, electrolytic production of chemicals, electropolishing, electropickling, metals refining, electrocoloring, electrotinning, and anodizing, the bulletin describes the design characteristics of the machine and stresses its important features. Design features of the motor generator are analyzed from the standpoint of their importance to the electroplater or user of the equipment.

The well-illustrated bulletin contains information concerning fabrication methods used in constructing the Chandeysson motor generator, stressing the fact that the methods used can only result in the production of a high-quality product.

ADHESIVES, COATINGS AND SEALERS. A handy guide to selection of industrial adhesives, coatings and sealers is now available from The Adhesives and Coatings Division, **Minnesota Mining & Manufacturing Company,** 423 Piquette Avenue, Detroit 2, Michigan. The two-color, eight-page bulletin titled, "Adhesives, Coatings and Sealers," lists the most important adhesives, coatings and sealers which 3M produces in such a manner as to enable the reader to determine at a glance what type of product is best suited to his particular manufacturing problem.

ANOTHER SCHORI FIRST! *

IOLYTE LAMINATED FIBERGLAS **TANKS, CROCKS**

***Fabricated* to Your Specifications!**

- **NO MOLDS NEEDED**—Made *any size, any shape,* at no extra cost and no loss of delivery time.
- **UNIFORM DIMENSIONS — NO TAPERING** — Dimensions are same at bottom and top . . . means larger capacities than tapered molded tanks.
- **FLANGES, DAMS, etc.** — Can be inexpensively equipped with flanged connections, holes, overflow dams, baffles, separations, etc.
- **NO REINFORCEMENT PROBLEM** — IOLYTE tanks can be reinforced in any manner — reinforcements for rigidity can be angles or channels of any size and can be horizontally, vertically, or diagonally mounted.
- **OTHER SUPERIOR FEATURES**

IOLYTE Ducts, Hoods, Dampers, Crocks, can be fabricated in any dimensions, any curves, any lengths.

Write for literature, prices, other information.

* OTHER SCHORI FIRSTS: 1. Spraying Metal Powders; 2. Flame Spraying Plastics; 3. Plastisol Rack Coatings; 4. Two solution spray gun; 5. Polyethylene tank lining; 6. Polyethylene-lined barrels; 7. Thiokol coatings.

Distributor Territories Open

SCHORI PROCESS DIVISION OF FERRO-CO CORP.

8-07 43rd Road, L. I. C. 1, N. Y.
Factory: 59-31 54th St., Maspeth

GARDNER LABORATORY 1953 CATALOG. TESTING INSTRUMENTS FOR THE PAINT AND OTHER INDUSTRIES, a catalog of 100 items made or sold by **Gardner Laboratory, Inc.,** Bethesda 14, Maryland, is available from the Gardner organization. Presented in abstract form, illustrations are included in most instances.

Some of the items covered are as follows: mobilometers, viscosimeters, film applicators, thickness gages, scratch test apparatus, gloss and reflection meters.

HELPFUL PUBLICATIONS. LIST "A" a 16-page check list available from **The International Nickel Company, Inc.,** 67 Wall St., New York 5, N. Y., consists of abstracts of 141 reprints of published material and papers, originally presented before various technical societies, on nickel alloy steels, cast irons, bronzes, brasses, and other nickel alloys. The reprints and papers abstracted are all available from International Nickel. **LIST "B"** a 12-page check list also available from International Nickel contains abstracts of available literature on the Inco Nickel Alloys.

"ALODINE" No. 1200 DATA SHEET. Available from **American Chemical Paint Co.,** Ambler, Pa., is a data sheet demonstrating the protective results and various methods of application of "Alodine" No. 1200, as compared with chromic acid anodizing, a conventional chromate treatment, and "Alodine" No. 100. A table showing compliance with tensile requirements of Mil-C-5541, for each of the illustrated panels, is included.

ORGANIC CHEMICALS. Shell Chemical Corporation, 50 W. 50th St., New York 20, N. Y., has announced the availability of its new Organic Chemicals catalog.

Generously illustrated, the brochure devotes almost 100 pages to the properties, specifications, and applications of the company's solvents, industrial chemicals, resins, and plastics. In connection with these, there is a full section describing the facilities of its technical service laboratory in Union, New Jersey.

The catalog concludes with a description of the company's national distribution system, one of the most complete in the industry. Copies of the catalog can be secured at any of the Shell Chemical sales offices.

THE "MAGIC TOUCH" THAT SELLS *and* EXCELS!

SPEKYELLO

U.S. Pat. No. 2,198,365

The Original and Standard SIMULATED GOLD TRI-METAL ALLOY ELECTROPLATE

Give your products the "magic touch" of beauty and greater sales appeal with SPEKYELLO, the Golden, Triple-Metal Alloy Plate. •A FAST PLATE—EASY TO OPERATE. No special equipment is needed. A steel tank may serve for both plating bath and anode. Produces a uniform color, eliminates costly rejects and troublesome color matching. Also solves your tinted lacquer problems. SPEKYELLO'S high throwing power enables it to penetrate deep recesses, ideal for basket plating. Plates directly over nickel, german silver, brass, copper, iron, and steel; also over all hard solders and most soft solders. Can also be used as an underplate.

The Beautiful Bronze that Really LOOKS LIKE GOLD

☆

COLOR RANGE From 14 Kt. to a Pink Gold Color

☆

UNIFORM COLOR Eliminates COLOR MATCHING

☆

LOW COST INDUSTRIAL and DECORATIVE FINISH

UNLIMITED APPLICATION—You just can't beat SPEKYELLO for plating of hardware, handbag frames, novelties, etc. Its *low cost* makes its application unlimited.

For Full Details Write for Bulletin PF-9.

SPECIAL CHEMICALS CORP. 30 Irving Place, New York 3, N. Y.

BROCHURE L-503, OPEX INDUSTRIAL LACQUER. Stated to be extremely fast drying and versatile, Opex Industrial Lacquer, produced by **Sherwin-Williams Co.,** 101 Prospect Ave., N. W., Cleveland 1, Ohio, is described in a four-page leaflet available from the company. A list of products for which the lacquer is specifically recommended appears on the cover, followed on page two by drying characteristics, viscosity, and film characteristics. Illustrated are the results of bend and print tests, and page three contains application suggestions and methods. Precautions regarding intermixing, drying, priming, and brushing, and a chart of standard base colors complete page four of the brochure.

PHILLIPS VAPOR DEGREASERS. An illustrated bulletin describing the process of degreasing metal parts by means of chlorinated solvents, and the equipment manufactured by the company is available from **Phillips Manufacturing Co.,** 3475 Touhy Ave., Chicago 46, Illinois.

Products fully described and illustrated include batch type vapor degreasers, combination liquid and vapor degreasers, rotomatic degreasers, railway vapor degreasers, conveyor type degreasers, and metal parts washers. Information concerning the location of Phillips sales and service offices is included in the bulletin.

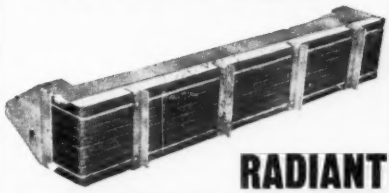
MIXED-BED DEMINERALIZER BULLETIN. Barnstead Still & Sterlizer Co., 130 Lanesville Terrace, Forest Hills, Boston 31, Mass., has announced the publication of **BULLETIN NO. 126** on mixed-bed water demineralizers.

The bulletin explains in text and pictures how a mixed-bed demineralizer operates in producing high-purity water by ion exchange method. Barnstead now has a full line of mixed-bed demineralizers in addition to the 2-bed and 4-bed models.

Special stress is laid on the recent development of Barnstead's simplified, positive regeneration system, which separates resin quickly and surely and then remixes them for efficient mixed-bed performance. On the new Barnstead Demineralizers, a glance at the indicator shows when exchange capacity of the resins is exhausted, and regeneration is easily accomplished by manipulating a few valves. No handling of acid and caustic solutions is necessary except in charging the regenerant tanks.

SYNTRON

Infra-red..

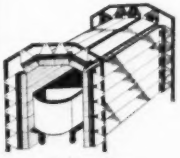


RADIANT HEATING PANELS

Flat Surface Oven

Cut production time and costs on baking, heating or drying processes. Light weight — compact — easy to install.

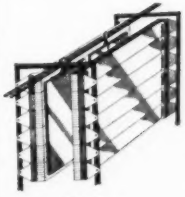
•



Baking Oven

Thin, strip type element design insures a flat, uniform, continuous heating pattern.

•



Side Oven

Syntron Panels heat by direct radiation — not by reflection. They permit closer application to the work—Lower power consumption—operate on any commercial a-c or d-c frequency.

Write for FREE catalogue information.

SYNTRON COMPANY

452 Lexington Avenue

HOMER CITY, PENNSYLVANIA

M & W WATER DIP NO. 33. BULLETIN NO. 117, produced by **Maas & Waldstein Co.,** 2121 McCarter Highway, Newark 4, New Jersey, is a four-page folder, describing Water Dip No. 33 and listing uses and advantages of the product. Method of application and process for dipping or spraying parts are included. The bulletin is clipped inside a three hole file binder, handy for keeping all M & W technical data bulletins together and in order.

STOP PAINT OVERSPRAY. Explaining how RP Paint Arrestors are used to remove paint overspray solids from air exhausted from paint spray areas, a twelve-page brochure available from **Research Products Corp.,** 1015 E. Washington Ave., Madison 10, Wis., contains illustrations and descriptions of various applications now in use, and includes diagrams showing how the banks of a number of disposable RP Paint Arrestor pads were formed to handle specific operations.

PUTTING A FINISH ON PARTS AND PRODUCTS MADE FROM B & W MECHANICAL TUBING. BULLETIN TB 350, available from **The Babcock & Wilcox Co.,** Tubular Products Div., Beaver Falls, Pa., discusses finishing of steel tubular parts and products, and divides the process into two chief operations: Preparation of the Surface, and Protection of the Surface. Subheads under Preparation are listed as cleaning, mechanical, chemical, and electrolytic; and Mechanical Finishing, turning, polishing, buffing, and burnishing. Under Protection, subheads listed are: Metal Coating, dipping, metallizing, chemical treating, and electroplating; and Organic Coating, brushing, dipping, and spraying.

Listed also are the various surface finishes of B & W mechanical tubing; grades, types, sizes, and shapes available.

ANTARA CATALOGUE. A 28-page catalogue has been issued by the **Antara Chemicals Division** of **General Dyestuff Corporation,** 435 Hudson St., New York 14, N. Y., covering such product groups as detergents, wetting agents, emulsifiers, brighteners, sequestrants, and dyeing assistants.

The book lists important application suggestions in a wide range of industries, including metal, paint, rubber, textile, synthetic fiber and a number of other specialty fields.

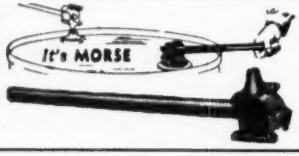
The first section of the catalogue lists the compounds in alphabetical order and gives general properties and uses. The second section is an index by trades showing which compounds are of interest in various industries. The third section is a listing of former names of all products and the new names under which they are now marketed.

PAINT MIXER

MIRACLE
5 GALLON
PAINT REJUVENATOR
All paint restored to original consistency without opening the can.
2 minutes per gallon.
MIRACLE PAINT REJUVENATOR CO.
127 E. 9th St., St. Paul 1, Minn.

MASKING TAPE
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
For quick, accurate masking operations.
PHONE OR WRITE PANOCO
505 Carroll St., Brooklyn 15, N. Y.

Send NOW for this FIT-ALL
DRUM PLUG WRENCH
Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs.
Order 1 or more today!



THOUSANDS IN USE saving time, labor, accidents!
SATISFACTION GUARANTEED.... $3.30
Non-sparking type $5.10
Plus Parcel Post
MORSE MFG. CO., Inc.
762 W. Manlius St., E. Syracuse, N. Y.

FURNACE BULLETIN. A colorful 12-page bulletin on **DESPATCH RECIRCULATING HEAT TREATING FURNACES** has been released by **Despatch Oven Company,** 619 S. E. 8th St., Minneapolis, Minnesota.

Pictured in full color on the cover are a pair of Despatch furnaces on a steel shell case line. Inside, **BULLETIN 81** is profusely illustrated showing Despatch Furnaces in operation on a variety of heat treating applications.

Furnace performance records are given in several instances and a double page spread in the center of the bulletin is devoted to detailed specifications for pot type, batch and conveyor type furnaces. Anyone concerned with the heat processing of metal will find the entire contents extremely interesting and informative.

CANTAVONE BROCHURE. American Electro Products, Inc., 1358 Thomaston Avenue, Waterbury, Connecticut, has announced the perfection of the "Cantavone" processes and techniques for electroplating intricate precision components with precious or common metals at controlled tolerances in a four-page leaflet available from the company. The processes are presently being used to plate, in quantity, precision components for industrial applications as well as government projects with as many as five electrodeposits, which, in many instances, are controlled to plus or minus tolerances of 0.00001 inch to 0.000001 inch.

A TAPE NUMBER DICTIONARY which makes possible quick, easy identification of pressure sensitive tapes has been made available by **Polyken Industrial Tape.**

Information on hundreds of pressure sensitive tapes has been gathered and reproduced in a convenient pocket-size booklet. Each tape number is listed in sequence with the manufacturer's name. For each tape there is included a description of its construction. This information, compiled in one booklet, is an excellent aid in determining the right tape for a specific job.

To obtain this booklet send 25c in coin to Polyken Industrial Tape, 222 W. Adams St., Chicago 6, Illinois. Order by number **P3-4.**

Fidelity

ENGINEERED COMPOUNDS

ZIPSOL METAL CLEANER
No. 74

(Degreasing Solvent)

ZIPSOL METAL CLEANER No. 74 is a superior metal cleaner and degreasing solvent. It removes heavy grease, oil and buffing compounds . . . quickly, safely and thoroughly. Is amazingly economical, too. Easy to use in tank or spray . . . at room temperature.

Write, detailing your metal cleaning problems. Our Laboratory Staff will be glad to make recommendations . . . no obligation, of course!

for

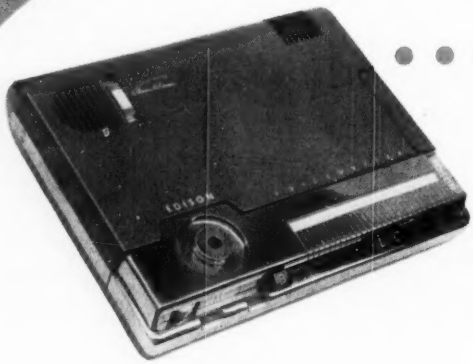
METAL FINISHING & PLATING

SPECIALISTS IN METAL CLEANERS AND PAINT STRIPPERS

FIDELITY CHEMICAL PRODUCTS CORP.

470 Frelinghuysen Avenue, Newark 5, New Jersey

Finishes



The aluminum housing of the Edison VP Voicewriter is finished in gray beige, attractively trimmed with polished aluminum.

(Photo courtesy Thomas A. Edison, Inc., West Orange, New Jersey)

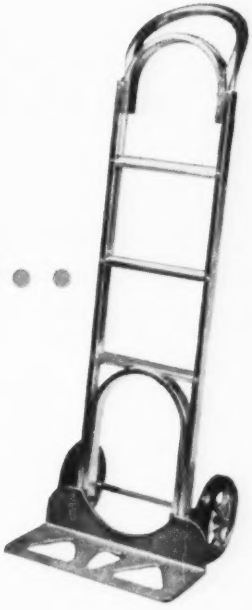
The Lyon aluminum frame folding chair is designed to combine beauty, comfort, and strength with light weight. The aluminum frame is finished in baked-on clear varnish. Steel seat and back are finished in walnut or taupe baked-on enamel.

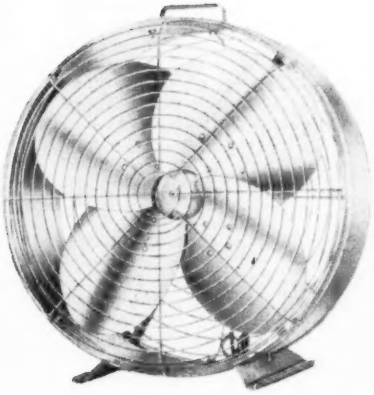
(Photo courtesy Lyon Metal Products, Inc., Aurora, Illinois)

that aid in appearance and utility

Weighing only 18 pounds, but with a capacity of 500 pounds, the MAGCOA magnesium Hand Truck is finished with an attractive bright pickle finish.

(Photo courtesy Magnesium Company of America, East Chicago, Indiana)





The steel spiral front and back guards of the Baldor Metal Frame P16 fan are chromium plated. The steel frame is finished with "hammertex" gray air dry lacquer.

(Photo courtesy Baldor Electric Co,. St. Louis 10, Missouri)

NEWS of the Industry

NEW PLANTS

THE BINKS MANUFACTURING COMPANY, maker of spray painting equipment, has announced the opening of a new branch sales office and warehouse at 3527 North 9th Street, Philadelphia, Pennsylvania. This office will service the area formerly handled by the Hovey Spray Equipment Company.

The property consists of two buildings, providing 11,000 sq. ft. of floor space. Office and display area are located in the one-story portion of a two-level structure. The warehouse occupies the two-story portion and provides about 9,000 sq. ft. of storage space. There are thus about 2,000 square feet in the office area, which includes a conference room, display room and space for office personnel.

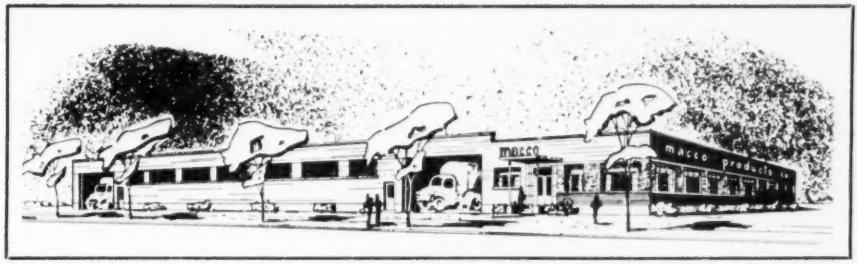
The office section will also house a repair department. This department will be equipped to service paint spray guns, pumps, compressors, oil and water extractors . . . in fact, any item in Binks complete line of spray painting equipment.

P. J. PETERS who has been with Binks for twenty-six years, has been appointed branch manager of a territory that serves jobbers and customers in Eastern Pennsylvania, Maryland, Delaware and Southern New Jersey. He heads a staff well qualified to answer questions pertaining to spray painting and coating equipment and materials.

Starting business in 1931 in a two-car garage and having since moved to larger quarters three different times, the **MACCO PRODUCTS CO.** is now in the process of building a modern, new plant. The location is a square block between 92nd and 93rd on Sangamon St., Chicago.

G. A. Cairns, general manager, reports that the new building is to be one-story brick structure. It will have 40,000 sq. ft. of floor space and will afford 150 per cent additional production capacity. One of the principal features will be the new plant's fire and explosion-proof

Philadelphia branch sales office and warehouse of Binks Mfg. Company



Architect's sketch of new plant of Macco Products Co., Chicago, Illinois

compounding room, which will be one of the most modern in the industry.

Designed with receiving department at one end and the shipping department at the opposite end, the building has been planned so that there will be a constant, uniform flow of processed material going through the plant.

The Macco Products Co. produces special drawing and cutting oils, cleaning and rust-proofing solutions, and many other compounds for steel processing.

The centuries-old art of brushmaking, which has changed but little through the history of civilization, has been rejuvenated with the completion of a streamlining modernization program at the **BRUSH DIVISION** of the **PITTSBURGH PLATE GLASS COMPANY,** Baltimore, Md., one of the largest manufacturers of paint and varnish brushes in the United States.

Under the guidance of E. D. Peck, vice president in charge of Pittsburgh's Paint and Brush Division, the company's brushmaking facilities have been revised from top to bottom. The undertaking represents the first complete modernization of an existing large paint and varnish brush manufacturing plant and has resulted in straight l'ne flow of manufacture being concentrated in an existing four-story building, which ordinarily would have been possible only by constructing a new building.

The multi-building Pittsburgh brush operation succeeded in achieving one-building, one-level manufacturing methods by the use of conveyors and gravity chutes of materials as well as provisions for mobility of assembly line equipment to allow for quick changes in production scheduling. Efficient layout and planning of all manufacturing operations resulted in a minimum outlay for new equipment although equipment innovations have been incorporated in the revitalized operation.

Increased utilization of space has been spectacular. Two small buildings were torn down in order to provide improved traffic conditions at the loading docks, increased shipping and receiving capacity, and allow for a straight access to the company's adjacent Power-Driven Brush Division.

Better scheduling, planning, quality control, estimating and supervision have practically eliminated production delays and have resulted in tremendous reduction in lead time from the receipt of an order to the time of shipment. Orders that formerly required sixty days from receipt of order to shipment date can now be handled on an average of 15 to 30 days.

As a result of the mechanized flow of materials and manufacture, the Pittsburgh Plate Brush Division has been able to reduce the number of units in process of manufacture approximately 70 per cent and at the same time increase production capacity. Flow of materials in manufacturing the average wall brush has been reduced from more than a mile (5410 feet) to 600 feet.

Goal of the streamlining project was threefold:

1. Increase production flow and reduce work in process of manufacture.
2. To insure rigid quality control of brush manufacture using the company's own development, pure Neoceta bristle, which is generally conceded to be equal in most painting properties to hog bristle and superior in some and for which national demand has been growing both in the consumer and brush manufacturing market.
3. To effectively meet competition by being in a position to furnish superior painting tools economically manufactured.

Flow Plan

The flow in the modernization confines all major operations to one building where the most floor space was available, in order to achieve straight line production. All brushmaking processes are completed within the one building using the smaller buildings for service departments, thus affording flexibility and a valuable use of floor space.

Bristle is received at the dock and stored in the basement of the building on pallets. It is prepared on the same level and stored in cups from where it is elevated to the third floor on live skids where layout, mixing, brushmaking and vulcanizing take place.

Mixing and layout operators work out of cups and trays into shallow tote boxes on dollys. Work then flows directly to brushmaking where individual brushes are set up and placed on a belt conveyor for the pour operation. Brushes are then suspended on newly devised rack trucks for vulcanizing, beat out (to remove loose bristles from the completed brush) and trim. The brushes remain on the rack trucks which go directly into the oven for curing.

All the above operations take place on one floor in one building. Before modernization was undertaken, these operations were performed on three different floors in three separate buildings.

Assembly and Finishing

Assembly and finishing operations have been concentrated on the second floor level. Here standard brushes are fabricated on three powered conveyors with straight line production. On the same level specialty and custom operations are set up functionally to allow greater flexibility of manufacture, short job quantities, and the various needed hand operations. Arrangement of equipment is such that a minimum number of operators can process an entire job lot through the progressive operations to completion.

Completed work at the end of each assembly line is then placed on skids for delivery to the floor below for finished goods storage or direct shipment, whichever the case may be.

Physical Plant

In addition to the streamlining of manufacturing facilities the reconditioned plant has been repainted throughout according to Pittsburgh's Principles of Color Dynamics, the scientific utilization of the energy in color to boost employee morale, reduce eye fatigue and thus create more efficient output. Employees also benefit by a new cafeteria, redecorated and improved restrooms and a continuous fluorescent lighting system in the manufacturing areas. That employee relations have been stimulated is reflected in the fact that a new two-year contract, satisfactory to both labor and management, was recently signed at the plant.

The **ATLAS MINERAL PRODUCTS COMPANY** has announced the enlargement of its production facilities for PLASTALOY reinforced polyester fume exhaust systems. PLASTALOY was introduced by Atlas some two years ago as a result of over three years of development work. Since that time, the increased demand for economical plastic fume exhaust systems has required an increase in production facilities.

MICHIGAN CHROME AND CHEMICAL COMPANY, 8615 Grinnell Avenue, Detroit 13, Michigan, has just moved into a new, modern office located at the above address.

The office, built in conjunction with the new plant, brings management, sales

New, modern office of Michigan Chrome & Chemical Co., Detroit 13, Michigan

Enthone, Inc., office building

(both Chemical and Plating Divisions), accounting, and purchasing under one roof.

A total of 5,000 square feet of floor space is used for all the functions of the new office.

The newest member of **NORTON BEHR-MANNING OVERSEAS INC.'s** group of foreign plants was dedicated July 6 in Belfast, Northern Ireland. This brings to 12 the number of grinding wheel and sandpaper factories operated by the export organization of **NORTON COMPANY**, Worcester, Mass.

The new plant, Behr-Manning Limited, located on Castlereagh Road, Belfast, N. Ireland, is equipped to manufacture coated abrasive papers and cloth such as roll goods, ream sheets, discs, belts and specialties. Additional machinery is currently being installed which will allow the plant to make the entire range of coated abrasives.

Providing 70,000 square feet of floor space, including office and factory areas, Behr-Manning Limited is situated on about six acres just outside the city limits of Belfast. The land is leased from the Ministry of Commerce. The plant was built during World War II for defense industry. It has since been remodeled to accommodate one of the most modern coated abrasive making machines.

Sole distributor of this plant's products in the United Kingdom is Norton Grinding Wheel Co., Ltd. of Welwyn Garden City, England.

The Prime Minister of Northern Ireland, Captain The Rt. Hon. The Viscount Brookeborough, C.B.E., M.C., D.L., M.P. officially opened the plant. A. Donald Kelso, president of Norton Behr-Manning Overseas, Inc., gave the main address. Other dignitaries attending were W. V. McCleery, Minister of Commerce, Northern Ireland; Lord Glentoran, parliamentary secretary to the Minister of Commerce; Dr. W. F. L. Place, managing director, Behr-Manning de France; John C. Ewer, managing director, Norton Grinding Wheel Co., Ltd.; and Henry Morris, legal counsel.

ENTHONE, INC., New Haven, Conn., manufacturer and supplier of chemicals and equipment for metal finishing, has completed interior and exterior work on the office building. The illustration shows the modernized front view with its extended use of glass block and tempered glass entrance.

Improvements within this building consist of additional offices in the modern design and refurbishing of all other offices to allow for the company's increase in technical and general personnel.

RAMPE MANUFACTURING CO. has opened an additional plant at 8404 St. Clair Ave., Cleveland, which will handle the manufacture of all tumbling equipment. All other products are being manufactured in the original factory at 3320 St. Clair Avenue.

The new $8,000,000 electrolytic chlorine and caustic soda plant at the Calvert City works of the **PENNSYLVANIA SALT MANUFACTURING COMPANY** is now in production.

The new DeNora electrolytic cells have been charged with brine made from Louisiana salt and activated with TVA power and are now producing chlorine and high purity, high strength caustic soda. Chlorine and hydrogen from the cells are being combined in the new anhydrous hydrogen chloride unit, and deliveries of these basic chemicals have started.

Present during the testing and start-up period were Dr. Vittorio DeNora of Milan, Italy, and representatives of the Monsanto Chemical Co., who license the cells in America. Pennsalt operators predict the new plant—the largest privately financed installation of its kind in America—will be up to maximum capacity production in a short time.

Murray R. Garfinkel, president of the **COMET CHEMICAL CO., INC.**, has announced the completion of a new factory, laboratory, and office building at 410 Adams St., Newark 5, N. J.

The new plant, under the direction of Alexander A. Ross, treasurer and plant manager, has been set up to insure efficient manufacturing of quality products. The new company setup provides increased productive capacity and improved technical service facilities.

Addition of facilities for new-steel construction has been announced by **ACME-FISHER**, rubber linings specialist, Louisville, Kentucky.

John W. Fisher, vice-president, points out that this has been done to save Acme-Fisher clients the costly delays usually entailed when metalwork to be protectively covered must first be ordered separately from independent steel fabricators. Also, combined operations under single control frequently result in cost-savings which benefit the customer.

Expansion of the metal working division of the **DEVILBISS COMPANY**, manufacturer of complete spray finishing equipment, has been announced by Howard P. DeVilbiss, company president.

To handle the company's expanding business in the spray booth field, an addition is being built on to the present building occupied by the sheet metal division. Mr. DeVilbiss said the new steel-frame and masonry structure will give the company additional space for manufacturing, storage and shipping.

While a portion of the company's spray booths are engineered for individual requirements, the DeVilbiss line of standard size booths are carried as stock items. With the expansion, Mr. DeVilbiss said, better delivery of standard booths can be made. The construction work is expected to be completed in September.

The company's manufacturing facilities occupy a 50-acre site in Toledo and, in addition to the separate building housing the metal working division, DeVilbiss has seven other modern structures for the manufacture of rubber hose, spray guns, air compressors, air regulators and transformers and other allied equipment. Branch plants are located in Santa Clara, Calif.; Somerset, Pa., and Windsor, Ontario; while an affiliate, the Aerograph Co., Ltd., operates in London, England.

Transfer of its New York offices to a new, 20,000 square-foot plant in Mountainside, N. J., has been effected by **BECKMAN INSTRUMENTS, INC.**, national manufacturer of instruments for science and industrial process control.

The air-conditioned brick structure, tripling the size of Beckman's current east coast operation, is located on U. S. Highway 22 to New York, just 12 minutes from Newark Airport.

Functioning as northeast sales and service headquarters for the South Pasadena, Calif. parent company, this building also will provide a branch manufacturing facility for the Beckman Helipot division, maker of helical potentiometers.

COMPANIES

THE CLINTON COMPANY, Chicago manufacturer of lacquers, stains, enamels, thinners, synthetics, adhesives, and other paint products, celebrates the 25th anniversary of the founding of the company this month. The company, founded in September, 1928, by Richard H. Clinton, Sr. and Duane L. Clinton, originally manufactured a line of shellacs, stains, and lacquers. This field was later broadened to a complete line of finishing materials, including enamels, hammer finishes, and wrinkle finishes.

In 1935 a new division of the company was organized for the manufacture of adhesives for the installation of acoustical and wallboard materials. In 1937 the offices and plant were moved to the present location at 1210-1230 Elston Ave., Chicago 30, Illinois.

After the death of Richard H. Clinton, Sr., Duane L. Clinton was elected president and Richard H. Clinton, Jr., who had joined the company in 1930 as secretary, was elected executive vice president. Herbert J. Buck, vice president in charge of sales, joined the company in 1937.

Richard H. Clinton, vice president, in commenting on the company's 25th anniversary, expressed appreciation and thanks to the many customers and friends of the organization for their support and cooperation that assisted in the growth of the organization to its present position in the industry.

The combination of electrochemical equipment manufacturing with nation wide distribution has been achieved by the merging of **SINGLETON COMPANY**,

Albert Singleton (left), T. R. Gill, G. A. Singleton

formerly at 10516 Western Avenue, Cleveland, Ohio, with **THE GENERAL SUPPLY COMPANY**, 5317 St. Clair Avenue, Cleveland, Ohio, according to T. R. Gill, vice president and general manager of the latter firm.

Albert Singleton continues as president of the manufacturing concern which is incorporated separately in the new setup as The Singleton Company, and now located with General Supply at 5317 St. Clair Avenue. Other officers of the new corporation are E. F. Buescher, vice president; T. R. Gill, treasurer; and G. A. Singleton, secretary. The unification of facilities is designed to improve operating efficiency and service to customers of both firms.

The move provides Singleton with a 100 per cent increase in plant space for his rapidly expanding production, now 3 times that of a year ago. Singleton startled the electrochemical processing industry in 1946 with his introduction of "Singleton Fusion - Welded Equipment" of transparent "acrylic" plastics such as Lucite and Plexiglass. The use of these materials in the equipment is said to improve processing, resist acids and alkalies, last indefinitely without contamination or deterioration, and offer clear visability. The line includes plating barrels, tanks, liners, baskets, buckets, and a recently developed salt spray cabinet. Their construction is made practical by the exclusive Singleton "Fusion-Weld" which produces a permanent, no-leak seam stronger than the material itself.

The General Supply Company is distributor for an extensive line of equipment and supplies for metal finishing. Complete information on Singleton Products and other lines handled by General Supply is available on request.

Farnsworth Currier, president of **CURRIER COMPANY**, Oakland, California, has announced the purchase of the **"DEE TEE" CLEANER BUSINESS** from Vokar Corporation of Dexter, Michigan. This equipment is used for vapor degreasing automobile differentials and transmissions.

Russell M. Houghton, president of **HOUGHTON LABORATORIES, INC.**, Olean, New York, manufacturer of Hysol products, has announced the appointment of two new representative organizations in Ohio and Canada.

The Servisales Company, 14327 Detroit Avenue, Cleveland, has been appointed for Ohio with three representatives, W. Mossman, C. Woneman and A. Geldhof.

In Toronto, the John S. Plewes Co., 52 Humbercrest Blvd., will be representative for Hysol products.

A field survey of refrigerator finishes has been completed by the **DU PONT INDUSTRIAL FINISHES DIVISION** in New Orleans and Miami which reveals that resistance to greasy materials, such as butter, has improved threefold over the past ten years. Softening and eventual failure of the finish where greasy substances were transferred from the housewife's hands to the enamel, especially around door handles, long was a primary problem.

Observations involving several hundred refrigerators in homes show that this is no longer serious. Also, chemists making the survey stated that "Dulux" synthetic resin enamels remain virtually blister-free even under the extremely humid conditions in the cities selected. Refrigerator finishes in northern climates have a considerably longer life, it was said.

The survey is the most recent in a continuing series dating back twelve years to correlate laboratory testing data with field experience. For example, if a coated panel will stand up under a Du Pont laboratory grease immersion test for three weeks, it has been found this can be translated into service throughout the life of a refrigerator.

This program of field surveys is credited by company finishes authorities with a major share in the steady upgrading of so-called high baked white organic finishes since their introduction of refrigerators in 1937. Over 36 million refrigerators have been finished in "Dulux" since that time.

TUMB-L-MATIC, INC., 4510 Bullard Ave., New York 70, N. Y. and the **HOFFARD VARNISH COMPANY**, Carlstadt, N. J., have pooled their technical "know-how" to offer free paint-tumbling test facilities to manufacturers who paint small parts in quantity.

Questions which the companies will answer include: Can my component or product be painted by the tumbling method? Will it be economical to use this process? What type of paint or varnish should be used? How much should be used per batch? What type of tumbling equipment should be used? How fast should batch be tumbled? For how long?

Savings effected for a manufacturer of toys—Paul Bonhop Inc., 4132 Park Ave., New York 57, N. Y.—illustrate the service which this test facility provides.

Bonhop formerly spray-painted dozens of parts for toys. The operation required setting up the parts, spraying, turning over, spraying, and drying. Considerable paint was wasted in the spraying operation.

Now, parts simply are dumped into tumbling barrels, tumbled for a few minutes with paint or varnish, emptied and placed in drying racks.

For further information on where to send samples, quantity to send, write to Tumb-L-Matic, Inc., 4510 Bullard Ave., New York 70, N. Y.

NATIONAL LEAD COMPANY has announced that it now has responsibility for distribution of all production of the Government-owned nickel plant at Nicaro, Cuba.

For this purpose, National Lead has set up a newly formed **NICKEL SALES DIVISION** to render technical service and assistance to nickel users.

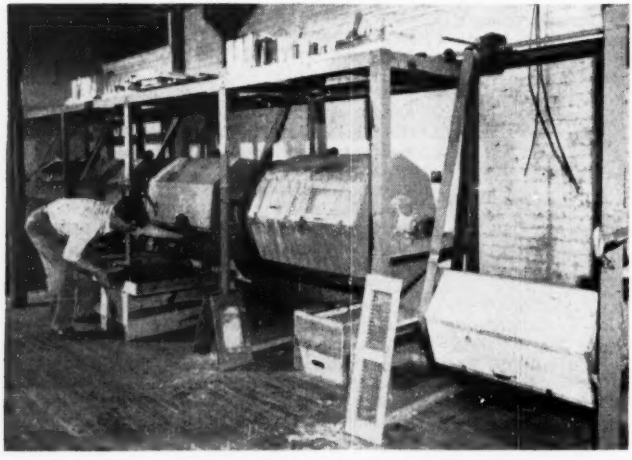
Headquarters of this division will be located at 111 Broadway, New York 6, New York.

THE DURIRON COMPANY, INC., Dayton 1, Ohio, designer and manufacturer of mechanical equipment for corrosive service, has announced the opening of a direct sales office in Needham, Mass., to serve the New England area. The office will be headed by **R. D. HENZE** who has served the Duriron Company since 1950 in the New York and Philadelphia areas.

The largest sales meeting ever held by the **ALMCO SUPERSHEEN DIVISION OF QUEEN STOVE WORKS, INC.**, was held recently at the general offices in Albert Lea, Minnesota.

A comparatively new company, the Almco Division was established as a division of Queen Stove Works, Inc. only four years ago and has since become a leading manufacturer and distributor of barrel finishing equipment and materials.

In charge of general arrangements was R. C. Trow, vice president and



Bank of Tumb-L-Matic tumbling barrels now used to paint parts at Paul Bonhop, Inc., New York 57, N. Y.

general manager, with N. L. Watkins, director of sales and research, in charge of the technical discussions and demonstrations.

The meeting started with a tour of the Queen Stove plant, the Almco plant and the Albert Lea Foundry. Discussions of service problems and various demonstrations on current equipment were held.

Brief talks were given by the following executives: Superflame Sales—Bud Johnson, Scotsman Ice Machine Sales—Bob Lickteig, Albert Lea Foundry—R. A. Trow, Production—B. W. Yocum, Plant Management—Ed Johnson, Personnel—William Griswold, Purchasing—E. H. Mickelson, Legal—D. J. Foley, Almco Engineering—Gene Olson, Almco Lab—Harold Mickelson, Sales Coordination—James Tschann, and Advertising—N. L. Youngstrom. N. L. Watkins presided over talks and demonstrations describing new developments in barrel finishing, new models, and the latest sales techniques.

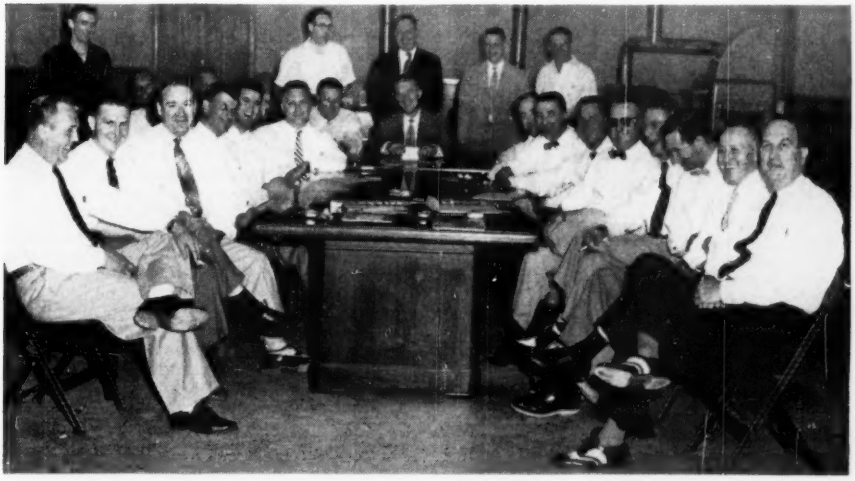
Almco sales engineers attending this general session included: O. D. Ladley, eastern branch manager, Newark, N. J.; Charles Rigdon, Detroit branch manager, Detroit, Michigan; Wayne Williams, Hemlock, New York; E. J. Sullivan, New Haven, Connecticut; William Elmas, New Haven, Conn.; Chester Piotrowski, Philadelphia, Pa.; Daniel McNichol, Pottstown, Pa.; John Haering, Hillsdale, New Jersey; Charles McNally, Georgetown, Massachusetts; John Haapala, Detroit, Michigan; Richard Jones, Aurora, Ohio; James Perry, Detroit, Michigan; Ray Krieger, San Fernando, California; Charles Price, Detroit, Michigan; Aldo Sarter, Detroit, Michigan; Donald Johnson, Chicago, Illinois; and Robert Conklin, Mahtomedi, Minnesota.

Purchase of Irvington Varnish & Insulator Co. of Irvington, N. J., by **MINNESOTA MINING & MANUFACTURING CO.** has been announced.

Herbert P. Buetow, 3M president, said the directors of 3M have approved a $7,000,000 agreement by which Irvington becomes a division of 3M. Mr. Buetow and Arthur E. Jones, Irvington president, said the move is a natural one in view of their respective interests in the field of electrical insulation.

Irvington Varnish & Insulator Co. is best known for its wide lines of insulating varnishes, varnished cloths and papers, and extruded plastic insulations.

Minnesota Mining & Manufacturing Co's. original interest in the insulating field stemmed from its wide variety of "SCOTCH" Brand insulating tapes.



More than 20 men participated in a large general sales meeting held recently in Albert Lea, Minn. Standing in the background are Harold Mickelson, in charge of the laboratory; Lee Watkins, director of sales and research; R. C. Trow, vice president and general manager; James Tschann, sales co-ordinator; and Chet Piotrawski, sales engineer. Seated at the tables are the Almco sales engineers attending the meeting presided over by D. J. Foley, secretary and legal advisor.

John T. Tebben

JOHN T. TEBBEN, management consultant, has been elected president and chairman of the board of the recently organized **WAGNER BROTHERS EQUIPMENT CO.,** which started operations in June, at 42056 Michigan Ave., Wayne, Michigan.

The firm was formed by a group of employees of Wagner Brothers, Inc., manufacturer and warehouse supplier to the plating industry, and will build electroplating equipment, headlined by a fully automatic electroplater. Other items include electroplating rectifiers, a package unit plater, semi-automatics, agitators, tanks and anode containers.

A division of the new firm is being organized to install tank linings, using a newly developed material of superior resistance to corrosive chemicals of all kinds. Modern facilities for lining with standard materials also will be installed in the new division.

Mr. Tebben, who has been connected with Wagner Brothers, Inc., for the past year has served as management consultant for many leading firms in the metal working industry, as head of the John D. Tebben & Co. He plans now to devote his full time to Wagner Brothers Equipment Co., Transformers, Inc., and Wagner Brothers, Inc., of which he is vice president and director.

"There is a need for new engineering approaches and manufacturing procedures in the electroplating industry. Through automation the industry can fill that need and maintain pace with other manufacturing processes. We have the staff, the experience, and plant facilities to do the job," Mr. Tebben said.

A government contract totalling more than a million dollars has been received by the **DEVILBISS COMPANY,** manufacturer of complete spray finishing equipment.

The award, issued by the Detroit Ordnance Tank and Automotive Center, covers 140 large paint spray exhaust booths of modern water-wash type, ample in size for the finishing of auto trucks and related military vehicles. It is the largest single contract for spray booths ever awarded the DeVilbiss firm, even though the company has been a regular supplier of its standard spray coating and finishing equipment as well as its medicinal atomizers to the armed services throughout World War II and the continuing defense period since that time.

The spray booths are to be installed for maintenance painting.

Howard P. DeVilbiss, president, stated that the equipment will incorporate the latest design in exhausting, illumination and electrical control features. The operators of these booths, he added, will work under ideal conditions, as the water wash installations remove virtually all of the paint pigment from the exhausted air before it is expelled to the outside atmosphere.

TITEFLEX, INC., 500 Frelinghuysen Ave., Newark 5, New Jersey has announced the sale of the design and manufacturing rights of the Industrial Filter for electroplating to **WAGNER BROS., INC.,** 400 Midland Avenue, Detroit 3, Mich., distributor of filtration and automatic equipment to the electroplating industry. Titeflex still retains the design and manufacturing rights of its filters for the chemical and other industries.

The Titeflex filter features simplified vertical membranes with an economical backwash operation. The current filter line ranges from 1 sq. ft. test model to 500 sq. ft. models. Titeflex has also developed a growing business in custom design for filtration equipment to the specifications of individual customers. This filter has been developed from its original design to a leading position in the chemical and plating markets in the last ten years.

With the addition of the Titeflex filter, Wagner Bros. becomes both manufacturer and distributor of filters and filtration equipment. Wagner Bros. products are anodes, rectifiers, and a complete line of automatic and semi-automatic plating equipment. Present facilities consist of three plants in the Detroit area, backed up by national sales distribution.

John D. Tebbin, vice president of Wagner Bros., Inc. and president of Wagner Bros. Equipment Co., stated that the filter would be manufactured at the Wayne, Michigan plant, where production is getting under way promptly to take care of present distributors.

NEW POSITIONS

Harold R. Smallman

Hanson-Van Winkle-Munning Company, Matawan, N. J., manufacturer of electroplating and polishing equipment & supplies, has announced the assignment of **HAROLD R. SMALLMAN**, assistant vice president, to handle all of its affairs on the west coast. His headquarters and office will be in Los Angeles.

Concurrently, the A. J. Lynch Company is appointed H-VW-M distributor in California, with headquarters in Los Angeles and additional warehouse facilities and sales personnel in San Francisco. H-VW-M supplies will move through the Lynch organizations, which are well established in the metal finishing field. Mr. Smallman will assist Lynch personnel.

Mr. Smallman moves to the coast from Chicago where he was the H-VW-M district manager for 23 of his 31 years of service with the company. He is a veteran of World War I, having served two years with the 33rd Division, and is an active member of the American Electroplaters' Society and American Legion.

Michigan Oven Company, Detroit builder and designer of industrial ovens, has announced the appointment of **E. H. HORSTKOTTE** as engineering consultant for the Schenectady, New York, area.

Mr. Horstkotte comes to the company after 40 years' service with General Electric Company, from which he retired earlier this year.

During approximately half of this period with the General Electric Company, his work was devoted to the application and development of electrical equipment used in the paper, cement, woodworking, and steel furnace industries.

For the last twenty years, he was engineer of the Works Laboratory at the Erie Works. In addition to this activity, during the post-war period, he supervised all the planning and construction of the Locomotive and Car Equipment Development Laboratory.

His office with Michigan Oven Company is located at 1554 Union Street, Schenectady, New York.

Election of **JAMES L. HAYES** as president of National Advertising Co. of Waukesha, Wis., has been announced.

Mr. Hayes succeeds Herbert P. Buetow, recently elected president of Minnesota Mining & Manufacturing Co. National Advertising Co. is a wholly-owned 3M subsidiary.

Hayes joined National Advertising Co. in July 1948. Prior to that he had been president of Inland Rubber Corp. of Chicago, also a 3M subsidiary.

Hanson-Van Winkle-Munning Co., Matawan, N. J., manufacturer of electroplating and polishing equipment and supplies, has announced the appointment of **DR. D. GARDNER FOULKE** as manager of electrochemical development. He will be in charge of the laboratory phase of research and development work carried on by the company.

Dr. D. Gardner Foulke (left), John J. O'Day

Dr. Foulke, who is former executive secretary of the American Electroplaters' Society, moves up from his position as chief chemist for H-VW-M. Before joining the company, he did general chemical consulting work, university teaching, and work in organic research and steel technology. He is a graduate of Juniata College and Rutgers University.

The appointment of **JOHN J. O'DAY** as sales representative for the Detroit area has been announced.

Mr. O'Day has been with the company for 1½ years, having previously worked as a chemist with the Food and Drug Administration. He is a graduate of St. Peters College, Jersey City, and served as an aerial photographer for the USAAF during World War II.

George R. Lundberg

Five promotions in the Brush Division of the Osborn Manufacturing Company, Cleveland, Ohio, have been announced by E. V. Dowden, manager, Brush Division.

GEORGE R. LUNDBERG, formerly assistant sales manager has been promoted to sales manager. **FREDERIC T. TURNER**, formerly assistant sales manager, has been named manager, Market Research. **EVERETT A. SISSON**, formerly sales project supervisor, has been elevated to assistant sales manager. **ALFRED J. CHANDLER**, formerly assistant manager, Industrial Sales, has been named manager, Industrial Sales. **C. A. DOLBY**, formerly advertising and sales promotion manager has been promoted to manager, Distributor Sales.

Mr. Lundberg has been a member of the Osborn organization for a period of 20 years. He has served both the Molding Machine Division and Brush Division in many executive capacities. He has served as chief accountant, personnel manager, advertising and sales promotion manager, factory sales representative.

He has attended Cleveland College, Fenn College, and the Advancement Management Program at Harvard Business School. He is a member of the Cleveland Athletic Club and the Kiwanis Club at University Circle.

Mr. Turner came to Osborn in 1932. He has held the positions of sales representative, manager, Industrial Sales and assistant sales manager. A graduate of Cornell University, he is a member of the American Marketing Association, Society of Automotive Engineers and the University Club.

Mr. Sisson joined Osborn in 1952. He was formerly sales manager, Ferrotherm Co., Cleveland, and district representative, Standard Oil Co., (Indiana).

He is a graduate of Valparaiso University, and also attended Yale University. Mr. Sisson is president of the Mayfield Heights City Council, a member of the Hillcrest Junior Chamber of Commerce, the Cleveland Engineering Society and the Speakers Bureau, March of Dimes.

Mr. Chandler came to Osborn in November 1945 in the capacity of sales engineer for the Brush Division. He has held positions of project engineer and assistant manager, Industrial Sales.

Mr. Dolby joined Osborn in 1950. He was formerly associated with the Sherwin-Williams Company, was sales Manager of L. L. LeVeque Company of Columbus, Ohio, and was with the "All" Distributing Company of New York. Mr. Dolby was graduated from Ohio State University in 1936 and attended the University of Kentucky Law School. He is a member of the University Club.

Haviland Products Co., Grand Rapids, Mich., has announced the appointment of **JOHN HAMMER** as sales manager of the Manufactured Products Division. He will work with area salesmen in providing customers with engineering service on "surfactant compounds" in the Michigan, Ohio and Indiana territory.

DONALD M. ANDERSON, of Attleboro Falls, Mass., has been named New England representative and **CARL T. DOWLING** of South Amboy, N. J., has been named New Jersey representative for Bart-Messing Corporation, manufacturer of Sel-Rex selenium rectifiers, and Sel-Rex Precious Metals, Inc., manufacturer of salts and solutions for precious metals plating.

Mr. Anderson has been associated with the electroplating and finishing field for 14 years, both in sales and production work, with particular emphasis on precious metals and decorative finishing. In his new capacity he will handle sales of selenium rectifiers, plating and polishing equipment and supplies, and precious metal plating salts and solutions.

Mr. Dowling also will handle sales of selenium rectifiers, plating and polishing equipment and supplies, and precious metal plating salts and solutions, including the Bright Gold Process and Bright

Donald M. Anderson (left), Carl T. Dowling

Rhodium. Mr. Dowling, previously associated with Hanson-Van Winkle-Munning Co., has been in sales and engineering work in the electroplating field for eight years.

Howard Farkas, vice president and general sales manager of The U. S. Stoneware Co., Akron, Ohio has announced the appointment of **KENNETH L. BULLOCK** as assistant sales manager of The Process Equipment Division, with headquarters in the Akron office.

Mr. Bullock holds the degree of Bachelor of Science in Organic Chemistry from the University of Delaware, and is a member of the American Chemical Society. He has had wide experience in chemical processing, having specialized in the field of organic chemicals. He has been prominent in research and development of phenolic and furane resins for application in chemical resistant plant equipment.

FRANK J. BONNER has been named zone manager, Pacific Industrial Sales, for The Sherwin-Williams Co., according to an announcement from D. S. Gardner, assistant general manager of the paint firm's Industrial Sales Division.

Mr. Bonner, who will make his headquarters at 3423 Piedmont Ave., Oakland, California, will also head Sherwin-Williams west coast transportation sales in his new post.

He has been associated with the company since 1932 when he was named a sales representative in the Automotive Department. When the Pacific Industrial Zone was formed in 1942, Bonner became active in that division.

MEETINGS

A new booklet illustrating the process and wide variety of iron and steel products covered by hot dip galvanizing will be introduced at the **1953 SEMI-ANNUAL MEETING** of the **AMERICAN HOT DIP GALVANIZERS ASSOCIATION** at the Statler Hotel in Cleveland, Ohio, on September 14 and 15.

The 73 member hot dip galvanizing companies that compose the Association will also actively discuss the current specifications that are up for review by the ASTM and the U. S. Navy.

Other Committee reports will show progress on the first Safety Handbook ever prepared for the Hot Dip Galvanizing Industry. The plans of the Quality Control Committee's testing facilities will also be reviewed.

The Problems Clinic Session, a novel and highly successful open forum discussion, will also be held. At this session members discuss operational and technical know-how in an endeavor to answer questions or solve problems actually being encountered by other members.

Simultaneous metalworking and chemical agricultural conventions sponsored by **AMERICAN CHEMICAL PAINT COMPANY,** International Division, Ambler, Pa., will draw delegates from 40 countries the week of September 21. Arrangements are under the supervision of G. C. Romig, executive vice president of the company.

The sessions will be divided between Ambler and Washington, D. C. where delegates will meet with U. S. Government officials for an exchange of ideas on the problem of cooperating with NATO and MSA programs in maintaining the Free World's defenses and increasing its food supply, as these challenges effect the fields of corrosion inhibition and chemical agriculture.

The foreign manufacturers, some of the world's largest in the chemical field, are licensed by American Chemical Paint Company, pioneer in chemical metalworking and chemical weed and brush killers, under a unique system for spreading American know-how in these fields. The plan, only one of its kind maintained by a commercial enterprise in these fields, extends technical assistance to manufacturers in friendly nations.

The visitors will study American meth-

ods first hand at some of the East's most representative metal industrial plants, large and small, at the Agricultural Research Center of the U. S. Department of Agriculture, Beltsville, Md., and at the American Chemical Paint Company's new experimental farm near Ambler. The company farm, to be officially opened for inspection during the convention, boasts the largest commercial experimental station ever primarily devoted to herbicides.

The delegates will have an opportunity to fraternize at a number of informal get-togethers in the Ambler vicinity as well as in Washington.

They will be housed in several inns of the typical American Pennsylvania countryside around Ambler, some of especial historic significance. They will take part in some typically American pastimes, too, including a corn roast and clam bake on the company farm and a "stump the expert" panel at the end of the agricultural phase of the convention when key speakers will attempt to answer questions of the delegates.

Before they leave America, the delegates also will see a baseball game—the Phillies vs. the New York Giants at Philadelphia.

The American Chemical Paint Company's International Division has held conventions before, the last in 1939, but never with so representative a group. Commenting on the cosmopolitan aspect of the September gathering, Leon Cherksey, president of the 40-year-old firm, said:

"In the twenty-five years that American Chemical Paint Company has been encouraging the people of other countries to set up their own facilities for manufacturing products under our trademark, we have gone far beyond the simple idea of licensing. We now provide for the consistant transmittal of all ACP know-how, formulas, research projects, production data and whatever else will help the qualified manufacturers of friendly nations.

"We train foreign personnel in our United States laboratories and send out our technical men to assist our overseas distributors in their own countries in getting important foreign installations off to the right start.

"We always have been conscious of our opportunity for promoting international goodwill. Today we consider that to be a foremost duty consistent with profitable operations in our far-reaching yet intimate business transactions."

At the start of the convention the delegates will be told the typical American enterprise story of the company by F. P. Spruance, vice president. The firm is the originator of the cleaner which made painted steel automotive bodies practical and the first 2,4-D weed killer. It was among the first American companies to win approval of technical assistance contracts in Japan and Germany after the war, and introduced the chemical method of weed and brush killing to many countries.

J. O. J. Sheilenberger, vice president and director of the firm's International Division, said plans for the days the convention will meet in Ambler are complete and the Washington plans are to be completed shortly.

Countries which will be represented by delegates who already have accepted the convention invitation, he said, include: Argentina, Australia, Austria, Belgian Congo, Belgium, Bolivia, Brazil, Burma, Canada, Ceylon, Chile, Colombia, Cuba, Denmark, Ecuador, Egypt, El Salvador, England, Ethiopia, France, Germany, Haiti, India, Ireland, Israel, Italy, Japan, Kenya, Luxembourg, Mexico, New Zealand, Pakistan, Panama, Paraguay, Peru, Portugal, Puerto Rico, South Africa, Spain, Sweden, Switzerland, Uruguay and Venezuela.

Separate sessions will be conducted simultaneously at Ambler on chemical agriculture and on corrosion inhibition. Guest speakers will include: Dr. Roy L. Lovvorn, head of the Division of Weed Investigation, U. S. Department of Agriculture, Beltsville, Md.; Dr. Warren C. Shaw, agronomist, U. S. Department of Agriculture, Division of Weed Investigation, Dr. John E. Baylor, assistant extension specialist in farm crops, Rutgers University; Dr. Richard J. Aldrich, agronomist, U. S. Department of Agriculture, Division of Weed Investigation, Rutgers; Dr. R. D. Sweet, professor of vegetable crops, Cornell University; Dr. S. M. Raleigh, professor of agronomy, and Dr. R. B. Alderfer, professor of soil technology, Pennsylvania State College; Dr. Gilbert H. Ahlgren, chairman, Department of Farm Crops, Rutgers; Dr. M. B. Hoffman, profressor of pomology, Cornell University; S. L. Godschalk, supervisor of industrial finishes development, E. I. DuPont de Nemours & Co.; R. I. Kauffman, manager, Chemical Brush Killer Division, Asplundh Tree Expert Co.

Company speakers will include: Mr. Cherksey, Mr. Romig, Mr. Spruance and Mr. Shellenberger; Alfred Douty, director of research; Raymond M. Naylor, treasurer; Eugene A. Snyder, director of purchases; Robert H. Beatty, director of

agricultural research; Warren E. Weston, assistant export manager; Charles Jack, research farm manager; William P. Anderson, agricultural research assistant; A. J. Tafuro, agricultural research development; William W. Allen, chief agricultural formulating chemist; Joseph M. F. Leaper, chief, agricultural chemical division; Barbara H. Davis, agricultural research assistant; Rudolf Grun, market research; Dr. T. K. Pavlychenko, Canadian director of agricultural research; Maurice B. Turner, agricultural sales manager; John P. Taylor, assistant to the agricultural sales manager; Fred Heller, chemist; Ellsworth Stockbower, chief, metalworking technical service department; F. P. Spruance, Jr., assistant sales manager, metalworking; John Geyer, chief of metal treating development; Hugh Gehman, metalworking technical sales; Jay M. Biery, chief engineer; Nelson Newhard, chemist; James Thirsk, metalworking sales; R. O. Bailey, metalworking sales department; George S. Gardner, chemist; Albert J. Saukaitis, chemist.

The sessions on corrosion inhibition will cover acid cleaning; alkali cleaning processes; military, government and other specifications; development and testing of inhibitors; inhibited pickling in production; equipment for various processes; the painting of metal; quality control; various products; sales and service methods here and abroad.

Education, Research, and Production will be the highlights of the **31st ANNUAL MEETING** of the **FEDERATION OF PAINT AND VARNISH PRODUCTION CLUBS** to be held October 29, 30, and 31 at Chalfonte-Haddon Hall, Atlantic City, N. J.

The Program Committee, under the chairmanship of Eugene H. Ott of the Cleveland Club has revealed that 16 papers have been scheduled for presentation.

The Fifth Mattiello Lecture will occupy its usual position of prominence and will be presented by Dr. A. C. Elm, of the New Jersey Zinc Co. Dr. Elm is an internationally recognized authority in the field of drying oils, pigments, and paints. He wil present a paper on "The Effect of Pigments Upon the Mechanical Properties of Paint Films."

The Keynote Address will be delivered by a person well known to the industry. His identity will be revealed at a later date.

Round Table and Open Forum Discussions have become increasingly popular and four of them will be included in the program. They are: "New Emulsion Type Paints" (other than styrene-butadiene latices), "Production Planning and Scheduling," "Putty, Glazing, Caulking Compounds, and Roof Coatings," and "Gadgets and Gimmicks."

Eugene H. Ott

Many constituent clubs of the Federation will present papers and competition for the American Paint Journal Award is again expected to be keen.

SOCIETIES

The **FIRST AUSTRALIAN FEDERAL CONVENTION ON ELECTROPLATING** was held at the Hotel Federal, Melbourne, May 18 to 20th. Delegates from New South Wales, South Australia, Western Australia and Tasmania were among the 169 who attended. The convention was organized by the **MELBOURNE BRANCH** of the **AMERICAN ELECTROPLATERS' SOCIETY**, and supported by the **SYDNEY** and **ADELAIDE BRANCHES**.

The highlights of the technical sessions were the talks by Dr. William Blum, world-famous authority on electroplating who was invited to Australia especially for this convention. During his three months in this country, Dr. Blum visited Melbourne, Hobart, Launceston, Adelaide, Sydney and Brisbane, lecturing not only to branches of the American Electroplaters' Society, but also to chemical and metallurgical societies and university groups.

Other features of the convention included a competition for the best Plating Exhibit Board, which attracted entries of a very high standard. Delegates were also enthusiastic about the visits of inspection to Trans Australian Airlines, Essendon, and General Motors-Holdens Ltd., Fishermen's Bend. The program was concluded on the third night with a

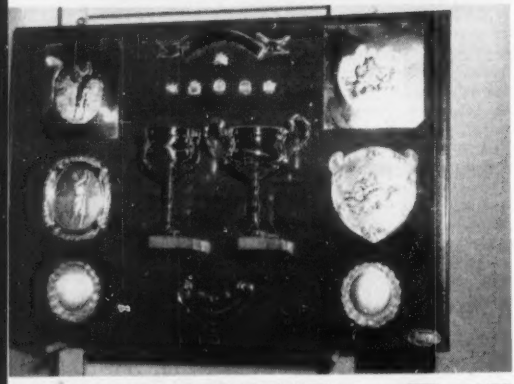


Fig. 1 (top left)—President Glen Walker opens the Convention.

Fig. 2 — Melbourne delegates (left to right) Shield, Hall, Quinton, Cullen, Merlon, and Taylor enjoy refreshments between sessions.

Fig. 3—One of the entries in the Plating Exhibit Board Contest.

Fig. 4—One of the groups at the dinner dance, social highlight of the Convention.

dinner dance in the Regent Room of the Hotel Federal. At this function Dr. and Mrs. Blum were presented with a silver salver engraved with the Australian Coat of Arms and suitably inscribed as a memento of their Australian tour.

The Convention has been voted an outstanding event in the history and progress of electroplating in Australia. The Melbourne Branch of the American Electroplaters' Society is publishing a volume of "Proceedings" containing the Papers presented at the technical sessions and the discussion on them. These will be available at ten shillings per copy on application to the Secretary, A.E.S. Melbourne Branch, G.P.O. Box 4591, Melbourne, Victoria, Australia.

TRAINING COURSES

The **JOSEPH B. KUSHNER ELECTROPLATING SCHOOL**, Stroudsburg, Pa., has announced a contest for a scholarship in **ELECTROPLATING KNOW HOW**, a home study training course in modern electroplating. The scholarship, worth $125, pays the complete tuition for the course, which is given under license from the Department of Public Education of the Commonwealth of Pennsylvania. The contest is open to any person in the plating industry.

In order to compete for the free correspondence course, the contestant must submit in 250 words or less, a discussion on the subject: "What I Like and Dislike About the Electroplating Industry." The winner will receive all the regular benefits accorded a student, which includes the awarding of a diploma on successful completion of the course.

A board of three judges to be announced at a later date will select the winning entry. The entries will be judged solely on constructiveness and sincerity of thought.

The contest will close December 1, 1953 and the winner will be announced some time in January, 1954. All contest entries must be submitted along with an official contest entry blank. For an official entry blank, and a complete set of rules and helpful hints on submitting entries, write to: Joseph B. Kushner, Electroplating Correspondence Course Contest, 115 Broad Street, Stroudsburg, lP, Pa.

FREE COURSE IN ELECTROPLATING. The Fall term in Electroplating at the **BROOKLYN EVENING TECHNICAL HIGH SCHOOL,** 29 Fort Greene Place, Brooklyn 17, N. Y., begins September 16, 1953. Laboratory experiments include analyses of copper, nickel, chromium and silver baths. Additional laboratory work provides the opportunity to perform Hull Cell experiments, pH meter operation, thickness measurement by chemical methods of zinc, cadmium, nickel, chromium. Classroom discussion covers such topics as a review of the fundamentals of elementary chemistry, tank area calculations, specific gravity and Baume readings, wetting agents, brighteners, buffer agents, pitting. Registration begins September 14, 1953, and daily thereafter from 7:00 to 9:00 P. M. Classes meet Tuesday and Thursday nights, 6:45 to 8:15 P. M., plus about 6 Friday nights during the term. The term begins September 16, 1953, and ends January 29, 1954. Ask for Mr. L. Serota in room BW17 or 3E12.

September 6-11, 1953. 124th National Meeting, American Chemical Society, Chicago, Illinois.

Sept. 13-16. 104th Meeting, Electrochemical Society, Ocean Terrace Hotel, Wrightsville Beach, N. C.

Sept 14-15. Semi-Annual Meeting, American Hot Dip Galvanizers Association, Inc., Hotel Statler, Cleveland, Ohio.

Sept. 16-18. 15th Annual Shop Practice Forum, Porcelain Enamel Institute, Ohio State Univ. and Deshler-Wallick Hotel, Columbus, Ohio.

AGATEEN

No. 27

A Crystal-Clear Water White Lacquer

Minimum change of original surface appearance.
Excellent for Watch Dials, Reflectors, Emblems, etc.

No samples. Minimum order accepted.

Agate Lacquer Mfg. Co., Inc.

Serving industry since 1927

11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

Sept. 21-25. Eighth National Instrument Exhibit, Instrument Society of America, Sherman Hotel, Chicago, Illinois.

Sept. 23-25. 56th Annual Convention of the International Association of Electrotypers & Stereotypers, Hotel Statler, Detroit, Mich.

Oct. 19-23. 35th National Metal Exposition and Congress, American Society for Metals, Cleveland Public Auditorium, Cleveland, Ohio.

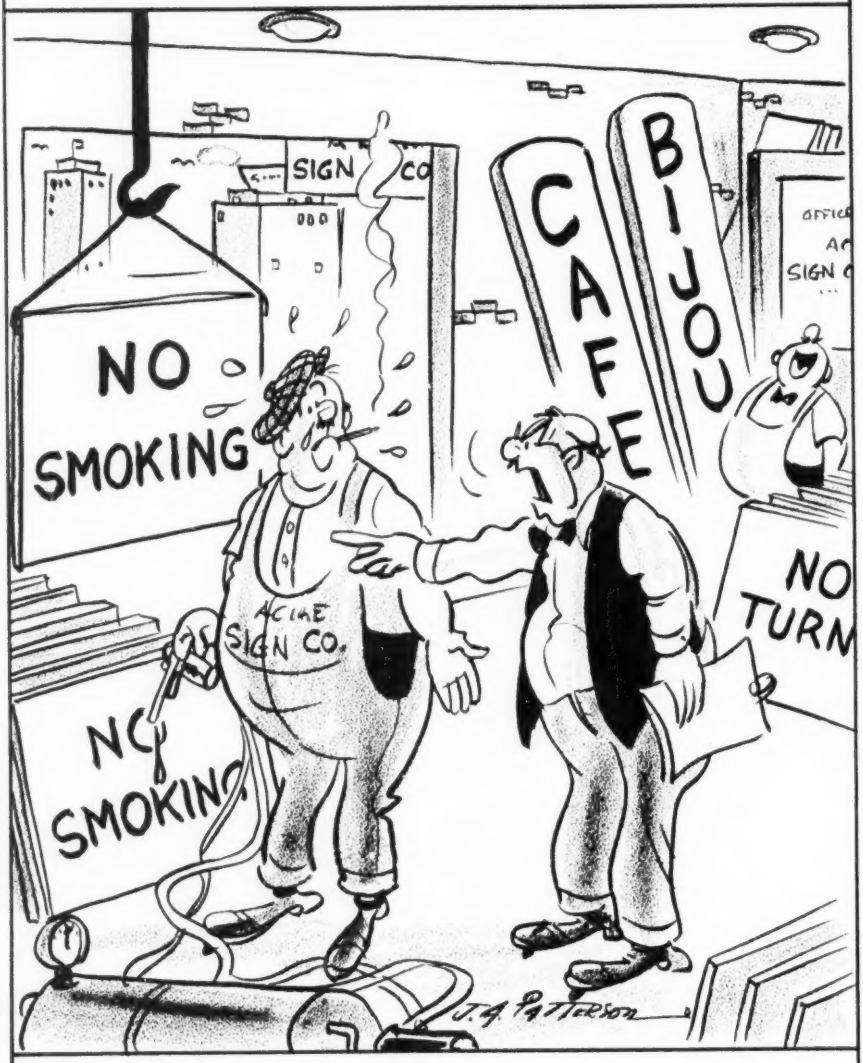
Oct. 19-23. 41st National Safety Congress and Exposition, National Safety Council, Chicago, Ill. Sessions on industrial safety at Conrad Hilton, Congress, Morrison, and Hamilton hotels.

Oct. 26-28. 65th Annual Convention, National Paint, Varnish and Lacquer Association, Chalfonte-Haddon Hall, Atlantic City, N. J. For reservations write Paint Industry Convention Bureau, 16 Central Pier, Atlantic City, N. J.

Oct. 29-31. 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs, Chalfonte-Haddon Hall, Atlantic City, N. J.

Nov. 30-Dec. 5. 24th Biennial Chemical Industries Show, Commercial Museum and Convention Hall, Philadelphia, Pa.

The Finishing Touch — By J. A. Patterson



"Don't 'but' me, Hargenson - - - Can't you read??"

OPPORTUNITY SECTION

SOUTH FLORIDA TEST SERVICE

Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4201 N.W. 7th St., Miami 34, Florida

INDUSTRIAL SALES OPPORTUNITY

Manufacturer of nationally advertised industrial cleaning equipment seeks top flight men or organizations to handle southern territories. Attractive commission arrangement. Send complete resume on experience, accounts and qualifications. Box No. 92, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

HELP WANTED

Salesmen - Industrial Finishes

Minnesota — Wisconsin — Iowa

Must be experienced, young and aggressive.

Frost Paint & Oil Corp., Minneapolis, Minn.

Plating Supervisor needed for Decorative Trim Manufacturer located in Ohio. Submit experience in detail. Replies held confidential.

Box No. 94, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio

POSITION AVAILABLE

Plating engineer for job shop plant. Fast growing concern, permanent position. Opportunities. Box No. 95, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

FOR SALE

Complete Despatch Paint finishing system, less than five (5) years old, at 20% of original cost. Consisting of degreasing equipment, dry off oven, spray booths, and bake oven, also air replacement system. Complete system overhead conveyorized. Can be seen in operation, available February 1, 1954. Detailed description will be mailed on request. Address Jordon Refrigerator Company, 58th and Grays Avenue, Philadelphia 43, Pa.

INDUSTRIAL SALES

Manufacturer of Circo Vapor Degreasing Equipment and Degreasing Solvents desires experienced sales representation in established territories.

Topper Equipment Company

Clark Township, Rahway, N. J.

WANTED

72 x 36 x 24 deep approximately rubber lined steel tank complete with agitator and steam coil in back. Must be in good condition. Quote price and description. Judson Mfg. Corp., 84 - 18th St., Bklyn 32, N. Y.

FOR SALE

2 Divine Four unit type V automatic straight line polishing machines. One with 7½ HP motors and one with 10 HP motors. Both with conveyor, drive, belt and all motors, starters and applicaters. 220 V 3 phase, 60 cycle. Used but in good condition. Reasonable. Box No. 91, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio.

Infra Red Oven manufactured by C. M. Hall Lamp Co. Approximately 5 years old. Used very little. In excellent condition. Can be seen in operation. Complete with 72 bulbs. Priced for quick sale.

Box No. 93, c/o PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio

FOR SALE

2500 amp., 6 volt Chandeysson plating generator, 25 deg. Centigrade rise. Machine is practically new. Still on the skid. Sells new for $4200.00. Price is $2800.00.

ACME CHROME PLATING CO.

1535 W. Pierce Street Milwaukee 4, Wisc.

FOR SALE

1,200 gallons Zinc Cyanide Plating Solution. Analysis: Sodium Cyanide 10 oz. per gal., Sodium Hydroxide (Caustic Soda) 10 oz. per gal., Zinc 4.8 oz. per gal. Trace of Udylite Brightening Agent "A". Used 120 hours for demonstration purposes. Price reasonable. For information write W. C. Norris, Manufacturer, Incorporated, Attention J. H. Coman, Box 1188, Tulsa, Oklahoma.

INDEX TO ADVERTISEMENTS

Acme Mfg. Co. 91
Agate Lacquer Mfg. Co., Inc. 141
Allied Research Products, Inc. 43
Almco Div., Queen Stove Works, Inc. 116
Alsop Engr. Corp. 71
American Chemical Paint Co. 66, 67

Baker & Co., Inc. 14
Bart-Messing Corp. 76
Bede Products, Inc. 111
Behr-Manning, Div. of Norton Co. 77
Better Finishes & Coatings, Inc. 57
Blakeslee & Co., G. S. 6
Bond Chemical Products Co. 86
Buckeye Products Co. 105
Buckingham Products Co. 15

Ceilcote Co. 116
Central Machine Works 115
Chemsteel Construction Co., Inc. 102
Cincinnati Cleaning & Finishing Mchry. Co. ..... Second Cover
Clair Mfg. Co., Inc. 56
Clinton Co. 21
Cowles Chemical Co. 22
Cro-Plate Co., Inc. 64

Daniels Plating Barrel & Supply Co. 112
Despatch Oven Co. 47
Detrex Corp. ..... Fourth Cover
Detro Mfg. & Sales Co., Inc. 44
DeVilbiss Co. 12, 13
Dixon & Rippel, Inc. 110
Doepke Mfg. Co., Chas. Wm. 58
DuBois Co. 45
Du-Lite Chemical Corp. 46
DuPont de Nemours & Co., E. I., Electrochemicals Dept. 63

Egyptian Lacquer Mfg. Co. 4
Electro-Glo Co. 113

Fidelity Chemical Products Corp. 123

General Electric Co. 61

Hammond Mchry. Builders, Inc. 7
Hanson-Van Winkle-Munning Co. 3, 72, 73
Hardwood Line Mfg. Co. 60
Harshaw Chemical Co 8
Hisey-Wolf Machine Co. 103
Holland & Sons, Inc., J. 106
Houghton & Co., E. F. 41
Hygrade Food Products Corp. 62

Industrial Chemical Products Co. 83
Industrial Filter & Pump Mfg. Co. 32
Industrial Systems Co. 11

Jensen Specialties, Inc. 31

Keystone Emery Mills 118
Kirk & Blum Mfg. Co. 34, 35
Koch Sons, Inc., George 79

Lanly Co. 118

M & E Mfg. Co. 70
Maas & Waldstein Co. 52, 53, 75
MacDermid, Inc. ..... Third Cover
Metalwash Mchry. Corp. 101
Minnesota Mining & Mfg. Co. 33
Miracle Paint Rejuvenator Co., Inc. 122
Morse Mfg. Co., Inc. 122
Mosher Co. 78
Murray-Way Corp. 99

Neilson Chemical Co. 10
New York Blower Co. 107
Newcomb-Detroit Co., Inc. 90
Norton Co. 2

Oakite Products, Inc. 1
Osborn Mfg. Co. 9

Packer Machine Co. 20
Panoco 122
Parker Rust Proof Co. 39
Pelron Corp. 109
Peters-Dalton, Inc. 19
Phillips Mfg. Co. 18
Pittsburgh Plate Glass Co., Paint Div. 84, 85
Potter Paint Co., Inc. 117

Randolph Products Co. 104
Rockford Varnish Co. 89

Schori Process Div., Ferro-Co Corp. 119
Special Chemicals Corp. 120
Stanley Chemical Co. 65
Stevens, Inc., Frederic B. 87
Striplastic Co. 82
Stutz Mfg. Co., Geo. A. 38
Sulphur Products Co. 118
Syntron, Inc. 121

Thompson & Co. 40
Topper Equipment Co. 108

Udylite Corp. 80, 81
United Chromium, Inc. 16, 17
U. S. Spring & Bumper Co. 42

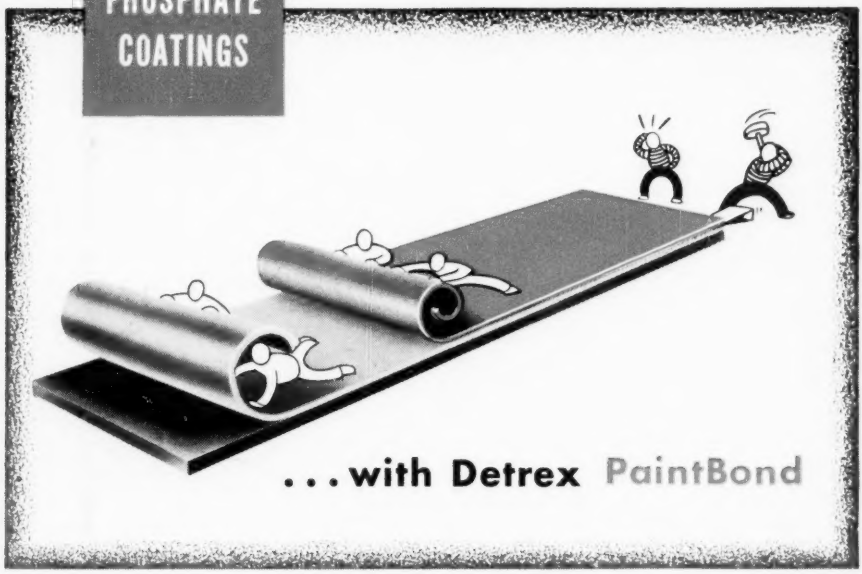
Varnish Products Co. 114

Wagner Bros., Inc. 48, 49
Wallace & Tiernan Co., Inc. 59

Important!
If you are not already on our mailing list to receive our complete file of data sheets, be sure to write for these now. Ask our technical representative, located in your district, about the new advancements in compounds and processes recently introduced.
THE INDUSTRY'S Best KNOWN TRADEMARK!
METEX T-280
CARBON & PAINT REMOVER
New, non-corrosive, water rinsable, liquid tank type organic compound for removing carbon and other soil from small engine parts such as pistons or connecting rods, or heavy accumulations of grease and soil from miscellaneous parts, and for complete removal of paint in tank type operations.
METEX Carbon & Paint Remover T-280 is specially recommended for . . .
Removing carbon, paint and heavy soil accumulations from internal combustion or jet engines and engine parts and stripping paint from rejected parts where tank type operations are adaptable.
Meets A A F specifications #20043.
nishing Industry
MAC DERMID Incorporated
WATERBURY 20, CONNECTICUT
New
METEX CLEANER TS 40A
Recommended for:
Cleaning prior to painting, anodizing aluminum, spot welding.
Removing stenciling inks from aluminum.
As a soak cleaner prior to electrocleaning.
Cleaning multi-alloy assemblies, such as engines, bearings, etc.
Special applications in burnishing.
Fabrication operations where a variety of metals are cleaned in the same tank.
Be sure to write for full information on this versatile and efficient all-purpose immersion cleaner for light metals, aluminum, copper, brass, zinc, lead, and ferrous metals.
Meets latest Interim Federal and U. S. Army specifications, PC 436.
MAC DERMID Incorporated
WATERBURY 20, CONNECTICUT
Thirty Years Service to The Metal Finishing Industry
Write for FREE DATA SHEETS Now!

DETREX PHOSPHATE COATINGS

Your Paint Finish is on to stay!



Detrex PaintBond effectively retards corrosion and serves as an excellent base for paint finishes on metal surfaces. Easily and quickly applied by spray or immersion means, it will add years of life to your product's finish.

Detrex PaintBond is a zinc phosphate coating which chemically interlocks itself on the metal's surface. Thus the metal surface is sealed off from moisture and other causes of corrosion. Since this coating provides a fine-grained crystalline surface, it also serves as an ideal base for paint and locks it securely to the metal. If the paint finish is scratched, PaintBond retards corrosion . . . and even when the scratch penetrates the coating, any corrosion that takes place is confined to the scratched area only.

As manufacturers of PaintBond, metal cleaners, degreasing solvents, and the equipment, Detrex can supply the entire process required to meet government or individual specifications. Only Detrex provides this "start-through-finish" service. For more complete information, contact our local field offices, or write direct to **Detrex Corporation, Box 501, Detroit 32, Michigan.**

P-1

DETREX CORPORATION

DEGREASERS • DEGREASING SOLVENTS • WASHERS
ALKALI & EMULSION CLEANERS • DRYCLEANING EQUIPMENT
PHOSPHATE COATING PROCESSES